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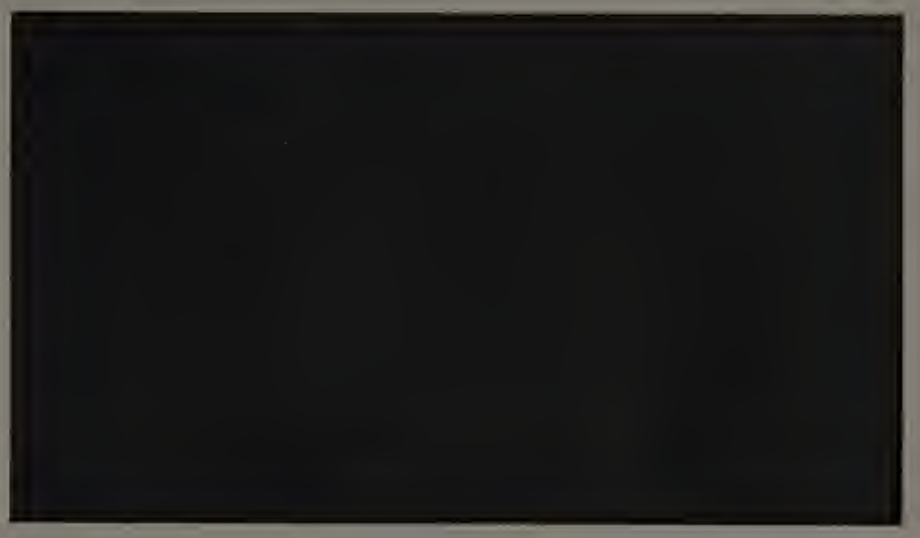

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SUPPLEMENTAL PHASE II
COMPREHENSIVE SITE ASSESSMENT
FORMER EVERETT STAGING YARD
WATER-SIDE
EVERETT, MASSACHUSETTS
RELEASE TRACKING NUMBER 3-13341

PREPARED FOR:
Wynn MA, LLC
Medford, Massachusetts

REF
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PREPARED BY:
GZA GeoEnvironmental, Inc.
Norwood, Massachusetts

December 2015
File No. 01.0171521.02

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December 31, 2015
File No. 01.0171521.02

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Re: Supplemental Phase II Comprehensive Site Assessment
Portion of the Mystic River Adjacent to the
Former Everett Staging Yard
Everett, Massachusetts
Release Tracking Number (RTN) 3-13341

To Whom It May Concern:

GZA GeoEnvironmental, Inc. (GZA) is submitting the attached Supplemental Phase II Comprehensive Site Assessment (Phase II) for the portion of the Mystic River located adjacent to the Former Everett Staging Yard disposal site. This Supplemental Phase II has been performed in accordance to 310 CMR 40.0835 of the Massachusetts Contingency Plan (MCP) and is subject to the limitations presented in Appendix A. The disposal site is identified by MassDEP as Release Tracking Number (RTN) 3-13341. A copy of the Comprehensive Response Action Transmittal Form (BWSC-108) is included in Appendix K of this report; that form was filed electronically via eDEP.

Should you have any questions on the report, please contact Lawrence Feldman at 781-278-3807.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Timothy Briggs
Senior Environmental Specialist

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Consultant Reviewer

Attachment: Report

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EXECUTIVE SUMMARY

GZA GeoEnvironmental Inc. (GZA) has prepared this Supplemental Phase II Comprehensive Site Assessment (Phase II) for the portion of the Mystic River located adjacent to the Former Everett Staging Yard (Figure 1), which is a disposal site regulated under the Massachusetts Contingency Plan (MCP) identified as Release Tracking Number (RTN) 3-13341. Historic releases of Oil and Hazardous Materials (OHM) at the Former Everett Staging Yard resulted in the contamination of sediments in an embayment of the Mystic River. A previous Stage II Ecological Risk Characterization concluded that contaminants in sediment present a significant risk of harm to the benthic (bottom dwelling) community. The main goals of this Supplemental Phase II were to delineate the limits of the MCP disposal site within the river, and to develop clean-up goals to define what portion of the disposal site within the river would need to be remediated in order to achieve a condition of No Significant Risk as defined by the MCP (310 CMR 40.0006). The embayment and adjacent portions of the Mystic River that may have been impacted by those releases is referred to in this report as the "water-side" portion of the disposal site.

GZA performed an extensive sediment sampling and analysis program for the water-side, and collected sediment samples from locations in the Mystic River that are remote from the Former Everett Staging Yard Site; these remote samples were collected to represent what is referred to in the MCP as Local Conditions (essentially background conditions, as influenced by past human activities) within the river. Based on patterns in contaminant concentrations within the water-side sediments, and on statistical comparisons between water-side data and the Local Conditions samples, GZA identified arsenic, lead and mercury as the main Contaminants of Potential Ecological Concern in sediment associated with the Former Everett Staging Yard Site, and delineated an area of approximately 8.44 acres as the water-side portion of the disposal site.

Selected surficial sediment samples were run for chemical analyses and for 28-day, whole sediment toxicity tests using the marine species *Leptocheirus plumulosus*. The toxicity test results and chemical data were used to develop clean-up goals for arsenic, lead and mercury. Those clean-up goals were then used to delineate an approximately 6.82-acre area of the water-side portion of the disposal site that would need to be remediated to achieve a condition of No Significant Risk.

Although the Phase III study used to select a remedial alternative under the provisions of the MCP has not yet been completed, at the present time it appears that the remediation of the water-side portion of the disposal site will involve dredging and removing surficial sediment, and replacing the dredged sediment with clean sand. Because of the degraded condition of the Mystic River benthic habitat, and the shallow burrowing depths of the benthic species in this stretch of the river, a relatively thin layer of sand would effectively prevent the exposure of these organisms in the sub-tidal portions of the water-side. However, a dredge depth on the order of two feet may be the practical minimum depth of dredging and clean backfill.

GZA also performed a surface water and groundwater seep sampling program. Based on the results of that program, it is GZA's opinion that the discharge of contaminated groundwater has not significantly impacted surface water quality in the Mystic River. Ongoing Release Abatement Measure (RAM) activities being conducted on the upland portion of the disposal site will further reduce the potential for disposal site contaminants to be transported into the Mystic River and associated sediments.

1.0 INTRODUCTION

GZA has prepared this Supplemental Phase II Comprehensive Site Assessment (Phase II) for the portion of the Mystic River located adjacent to the Former Everett Staging Yard (Figure 1). This Supplemental Phase II is subject to the limitations presented in Appendix A. Soil, groundwater, and sediment at the disposal site have been contaminated by historic activities, including the former use of the property as a chemical manufacturing facility. The disposal site is identified by MassDEP as Release Tracking Number (RTN) 3-13341.

GEI Consultants, Inc. (GEI) of Woburn, Massachusetts, submitted a Phase II report for the Everett Staging Yard on February 10, 2012. The Phase II report included a Stage II Environmental Risk Characterization (Stage II ERC) performed by Menzie-Cura & Associates of Winchester, Massachusetts, (Menzie-Cura) in 2006. GEI and Menzie-Cura concluded that at least a portion of the embayment that extends northeastward from the main channel of the Mystic River had been impacted by releases from the Former Everett Staging Yard. Menzie-Cura found that contaminated sediment in the water-side portion of the disposal site presented a significant risk of harm to benthic organisms exposed to that sediment; since a condition of No Significant Risk to the environment could not be demonstrated, a sediment remediation program would be required to mitigate environmental risks. The embayment and proximal portions of the Mystic River that may have been impacted by historic activities on the Former Everett Staging Yard is referred to herein as the "water-side" portion of the disposal site.

GEI and Menzie-Cura based their conclusions on a small data set. Therefore, the delineation of the water-side portion of the disposal site was tentative, and the Stage II ERC was not sufficient to develop risk-based clean-up goals. The objectives of the present Supplemental Phase II are to provide the data necessary to adequately define the boundaries of the water-side portion of the disposal site, and to develop risk-based clean-up goals for ecological receptors. While the GEI and Menzie-Cura work is discussed briefly below, the data from this program were not used directly in this Supplemental Phase II. Given the availability of the substantially larger data set developed by GZA between 2013 and 2015, and the age and small size of the GEI and Menzie-Cura data set, GZA considered the use of the prior data set unnecessary.

RAM activities are currently being performed on the upland portion of the disposal site. The RAM activities are intended to reduce the risks associated with soil and groundwater contamination in three areas of the disposal site identified as the A-5 Area, the CES-2 Area, and the Low pH Area. Soil containing elevated concentrations of arsenic and lead in the A-5 Area will be excavated and disposed of off-site. Elevated concentrations of arsenic in soil and groundwater in the CES-2 Area will be addressed through excavation and disposal of soil off-site. Soil and groundwater in the Low pH Area will be treated using in-situ solidification/stabilization (ISS) to both reduce the ability of groundwater to flow through the Area, and raise the pH to limit the further mobilization of metals from soil to groundwater.

2.0 WATER-SIDE BACKGROUND

The following sections describe the environmental conditions of the water-side portion of the disposal site and Lower Mystic River (i.e., the tidal portion of the Mystic River which is seaward of the Amelia Earhart Dam), and discuss previous investigations conducted by others.

2.1 SITE HISTORY AND DESCRIPTION

The Former Everett Staging Yard was used for chemical manufacturing from the late 1800s until the early or mid-1960s, and buildings associated with chemical manufacturing were razed during the 1960s and 1970s. Releases to the water-side likely occurred over that period of manufacturing, and may have continued after chemical manufacturing ended due to the discharge of contaminated groundwater and the erosion of contaminated soil and other particulate materials. The long history of releases from the Former Everett Staging Yard, combined with multiple historic dredging efforts and the accretion of sediment and eroded soil from the property, resulted in high contaminant levels in both shallow and deeper sediments.

The Former Everett Staging Yard property (the "Wynn property") includes an upland area and a portion of the bed of the Mystic River totaling approximately 35 acres. The upland portion of the Wynn property is an irregularly shaped, approximately 21.75-acre parcel of land (Figure 1) roughly bounded by Alford Street to the east, MBTA railroad tracks to the west, an MBTA bus repair and maintenance facility to the north, and the Mystic River to the south. The Wynn property includes a peninsula of land that extends southerly into the Mystic River, and most of the small embayment located eastward of the peninsula.

To facilitate discussion, different portions of the Wynn property and adjacent areas are referred to in this report as follows:

- disposal site: as described in the MCP at 310 CMR 40.0006(1)(b), the term "disposal site" refers to a place or area where an uncontrolled release of oil and/or hazardous material… has come to be located." For the purpose of this report, "disposal site" refers to the Former Everett Staging Yard disposal site, identified by MassDEP as RTN 3-13341.
- upland property: the entire upland portion of the Wynn property, which is also the upland portion of the disposal site.
- peninsula: the portion of the upland property that extends to the southwest into the Mystic River.
- study area: the portion of the bay and Mystic River below mean high water (MHW), on or adjacent to the Wynn property which may have been significantly impacted by contaminant releases at the upland property. The sediment sampling grid shown on Figure 2 spans the study area.
- water-side site: the water-side portion of the disposal site where contaminants released from the upland property have come to be located in sediment. The water-side site was delineated as discussed in Section 4.0. The water-side site is also referred to as "on-Site" in this document.
- head of the bay: the northeast half of the Wynn property bay, which is visibly wider (in a southeast to northwest direction) than the southwest half of the bay.

- neck of the bay: the southwest half of the bay, which is slightly narrower than the head of the bay.
- mouth of the bay: the southwest limit of the Wynn property bay where it opens to the main channel of the Mystic River.
- southwest shoal: the inter-tidal and sub-tidal portion of the study area off of the southwest shore of the Wynn property peninsula.
- channel: the historically dredged navigational channel (bottom contours generally on the order of -16 to -18 feet NAVD88) which runs along the west side of the neck of the bay to the northwest corner of the head of the bay.

2.2 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

The following sections briefly discuss previous field programs and human health and environmental risk assessments performed for the water-side site.

2.2.1 Ecological Risk Characterization

In 2006, Menzie-Cura performed water quality measurements (temperature, specific conductance, dissolved oxygen, and pH) in the field and concluded that groundwater discharging to the river did not significantly affect surface water quality, and that groundwater contaminants from the upland property would not result in toxic levels of contaminants in surface water. Menzie-Cura estimated a dilution factor for disposal site groundwater discharging to the Mystic River, which was applied to contaminant concentrations in groundwater.

From December 2005 through May 2007, sediment samples were collected from 19 sampling locations within the water-side site by Menzie-Cura, Tetra Tech Rizzo, Inc. of Framingham, Massachusetts (Rizzo), and Williams Environmental Services, Inc. of Lynnfield, Massachusetts. These samples were analyzed for various chemical constituents, including RCRA 8 metals, semi-volatile organic compounds (SVOCs), extractable petroleum hydrocarbons (EPH) with target polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and volatile organic compounds (VOCs); some of the samples were also analyzed for sediment grain size distribution. Menzie-Cura also collected three sediment samples from the Lower Mystic River downstream of the disposal site to evaluate reference conditions[1]. These samples were analyzed for MCP 14 metals, PAHs, total organic carbon and grain size. GEI delineated a tentative water-side disposal site boundary, as shown on the GEI Phase II Site Plan (Figure 2 in the GEI report), which encompassed 18 of the 19 sediment sample locations. The SED-6 sample from the southwest shoal area, which had relatively low concentrations of arsenic and lead, was not included within the tentative disposal site boundaries.

In the 2006 Stage II ERC report Menzie-Cura listed sediment contaminants of concern as arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, vanadium, zinc, bis(2-ethylhexyl)phthalate (DEHP), butylbenzlphthalate, di-n-octylphthalate, PCBs, and EPH fractions. The discussion in Section 4.1 below explains why those contaminants were either included or eliminated as sediment contaminants of concern for this Supplemental Phase II.

[1] Referred to in the GEI Phase II as "background," but more appropriately considered "Local Conditions;" see Section 3.2 of this Supplemental Phase II.

To assess the potential risk to benthic invertebrates due to exposure to sediment contaminants, Menzie-Cura submitted five water-side samples and three Mystic river reference samples to a toxicity testing laboratory for 28-day tests using *Leptocheirus plumulosus*; endpoints measured were survival, growth, and reproduction. They also collected soft-shell clams (*Mya arenaria*) for tissue analyses, and compared chemical concentrations in clam tissue to concentrations from the literature that may be associated with toxic effects to benthic invertebrates. Four of the five toxicity test samples showed significantly reduced survival, growth, or reproduction compared to the reference samples. Concentrations of arsenic in soft-shell clam tissue exceeded literature-derived toxicity reference values. Based on these results, Menzie-Cura concluded that contaminants in the sediment presented a significant risk of harm to benthic invertebrates.

Menzie-Cura performed food web assessments for common wildlife species that may feed on benthic invertebrates that have taken up sediment contaminants into their body tissues. Species evaluated were the herring gull (*Larus argentatus*) and raccoon (*Procyon lotor*). Menzie-Cura concluded that sediment contaminants of the water-side do not present a significant risk to wildlife that may feed on benthic invertebrates at the disposal site.

Menzie-Cura developed a list of disposal site-related contaminants of concern by comparing contaminant concentrations in sediment to those in the three reference samples collected from downstream in the Mystic River. GZA performed a detailed evaluation of sediment data, and concluded that arsenic, lead and mercury are the primary contaminants of concern in sediment (see Section 4.1). The contaminant list developed by Menzie-Cura is discussed in Section 4.1 within the context of GZA's evaluation of disposal site-related contaminants of concern.

2.2.2 Human Health Risk Characterization

GEI did not perform a quantitative human health risk assessment as part of its Phase II. GEI considered human access to sediment as limited due to the presence of a partial fence and bulkheads. It also cited an October 11, 2011, Massachusetts Department of Public Health (DPH) P6 fish advisory restricting fish consumption for the stretch of the Mystic River located between the outlet of Lower Mystic Lake and Amelia Earhart Dam (approximately 600 feet upstream of the disposal site) due to contamination by PCBs, and the pesticides dichlorodiphenyltrichloroethane (DDT) and chlordane. Based on the limited access to sediment and the fish advisory for the Mystic River, GEI concluded that human exposure to sediment contaminants was unlikely.

2.3 ECOLOGICAL RESOURCE AND HABITAT DESCRIPTIONS

2.3.1 Aquatic Habitat of the water-side and Lower Mystic River

MassDEP has categorized the Lower Mystic River as a Class SB water body under the Massachusetts Surface Water Quality Standards (314 CMR 4.00). A Class SB water body is a marine surface water classification designated for protection as fish habitat, for other aquatic life and wildlife (including a consideration of their reproduction, migration, growth and other critical functions), and for primary and secondary recreation. The Lower Mystic River is closed to shellfish harvesting due to high bacterial counts.

All of the Inner Boston Harbor/Lower Mystic River is designated as Essential Fish Habitat (EFH) by the National Marine Fisheries Service (NMFS) under the Federal Magnuson Fisheries Conservation and Management Act of 1976. As such, the Lower Mystic River is under the jurisdiction of the New England Fisheries Management Council (NEFMC). According to the NEFMC, the harbor provides EFH for at least one life stage for 23 managed fish species. In addition, the Lower Mystic River may support several fish species that could trigger Massachusetts Department of Marine Fisheries (DMF) Time of Year (TOY) restrictions for dredging and construction activities. Such species include alewife (*Alosa pseudoharengus*), blueback herring (*A. aestivalis*), American shad (*A. sapidissima*), white perch (*Marone americana*), American eel (*Anguilla rastrata*), and Winter Flounder (*Pseudopleuronectus americanus*). TOY restrictions are intended to protect sensitive life stages of fish species including spawning and early development (larval and fry stages).

Since 1989, the Massachusetts Water Resources Authority (MWRA) has monitored water quality parameters in the Inner Boston Harbor and its contributing waters. Data summarized from the two MWRA stations closest to the study area (Station 52, approximately 3,000 feet downstream, and Station 69, approximately 1,000 feet upstream) are indicative of a shallow estuarine habitat, where salinity and temperature fluctuate over wide ranges. Mean salinity values indicate that the area is highly saline most of the time, although salinity fluctuates from nearly freshwater to ocean water salinities. Turbidity is generally low, with some localized events over 50 Nephelometric Turbidity Units (NTU), compared to background values around 5 NTU.

As discussed further below, since approximately 2000, the benthic community of the Lower Mystic River has been the subject of several studies associated with monitoring Confined Aquatic Disposal (CAD) cells for dredged sediments that are contaminated or otherwise unsuitable for open water disposal. As part of that monitoring program, in June 2000, ENSR (2001) performed a survey of the benthic community found in the sand caps placed on the CAD cells and in reference locations in the river outside of the CAD cell footprints. Observations of microbial mats of sulfur-fixing bacteria in the Lower Mystic River were common; these mats are indicators of anoxic (lack of oxygen) conditions at the sediment-water interface. These conditions are likely related to high rates of nitrogen loading and the presence of organic compounds in the water column. Because benthic infauna (i.e., benthic organisms that burrow into the sediment) depend upon oxygenated water at the sediment-water interface, water quality conditions that promote the growth of microorganisms that deplete oxygen in bottom waters negatively impact the development of the benthic community.

2.3.2 Shellfish and Benthic Invertebrate Community

In August 2013, April 2014, and September 2015, GZA biologists conducted detailed shellfish surveys of the inter-tidal and sub-tidal water-side and adjacent portions of the Mystic River. Those surveys were conducted in support of EFH Assessments (GZA, 2015a and 2015b) performed during the Massachusetts Environmental Policy Act (MEPA) review process for the proposed casino development at the Wynn property. The EFH Assessments were prepared to aid the U.S. Army Corps of Engineers and NEFMC in their review of the proposed Wynn Resort development in Everett, which includes dredging in the head of the bay for navigational purposes. The EFH Assessments can also be used to evaluate the

additional work in the water-side site that may be implemented to remediate sediment contamination under the MCP.

In 2013 and 2014 GZA excavated 14 shallow observation plots in the intertidal areas of the southwest shoal, and the north and west shores of the bay to characterize the benthic community. Relatively few viable shellfish were found within the entire inter-tidal area of the water-side site. Only nine individuals of living soft-shell clams (*Mya arenaria*) were found in the inter-tidal area, and all of these individuals were juveniles less than 10 mm in size. One area with a dense concentration of intact dead soft-shell clam shells was observed within the inter-tidal sediments of the southwest shoal area. This concentration of shells appeared to be an intact clam bed of mixed age-classes (i.e., intact articulated bivalve shells, at a uniform depth, with the shell orientation and spacing expected in a living clam bed). The observations of an apparently intact clam bed with 100% mortality of older clams suggests a relatively rapid mortality event within the recent past.

The reason for the apparent rapid die-off of soft-shell clams in the study area is unknown; however, there was a large scale die-off of clams in Boston Harbor in the vicinity of Logan Airport in late Summer or Fall of 2010. That die-off is thought to have been related to the soft-shell clam disease neoplasia[2]. There is evidence to suggest that the susceptibility of soft-shell clams to neoplasia may be increased by exposure to heavy metals, PCBs and PAHs (Bőttger et al., 2013).

In 2015 GZA made observations of soft-shell clams present in the intertidal area of the eastern shore of the bay, and found similar conditions, but with higher densities of living clams; 2% to 10% of the shells observed contained living clams.

Other observations in the inter-tidal zone included live razor clams (*Ensis directus*) and siphon holes, and occasional spent oyster (*Crassostrea virginica*) shells.

To survey the sub-tidal areas, GZA used a camera mounted to a submersible Remotely Operated Vehicle (ROV) to make visual observations, and evaluated six benthic grab samples collected using an Ekman dredge sampler. Living blue mussels (*Mytilus edulis*) were observed on rock and wood attachment sites in intertidal portions of the southwest shoal and near the eastern shore of the bay; however, they were largely absent from the west and north shores of the bay. Viable polychaetes (bloodworms; *Glycera* spp.) were observed within the sediments, but no viable Mollusca species were observed except for some surface snails (Crepidula, Llyanassa, and *Littorina* spp.). Green crabs (*Carcinus maenas*; a non-native species introduced in the 1800s) were present in low numbers in the sub-tidal areas, but again primarily near the Mystic River channel. No sea scallop (*Placopecten magellanicus*) or surf clam (*Spisula solidissima*) (living or spent shells) were found during these surveys.

GZA did not conduct a fish survey, but GZA field personnel did observe several flounder (*Paralichthys* sp.) and sculpin (*Cottus* sp.) during the ROV survey.

During the period from 1998 through 2008, eleven CAD cells were constructed in the greater Boston Inner Harbor area as part of the Boston Harbor Navigation Improvement Project and the Boston Harbor Inner Harbor Dredge Maintenance Project. These CAD cells

[2] A diffuse tumor of the clam circulatory system.

were constructed to contain dredge material that was deemed unsuitable for open water disposal, usually because of elevated levels of sediment contaminants. Eight of those CAD cells were constructed in the Lower Mystic River between the Alford Street (Route 99) bridge and the Tobin Bridge. These CAD cells span a reach of the Lower Mystic River between 0.3 and 1.2 miles seaward from the mouth of the bay. One cell was constructed in the Chelsea River and two were constructed in the Boston Inner Harbor just seaward of the confluence of the Mystic and Chelsea Rivers. Ten of these CAD cells have been capped using sand from dredging operations at the Cape Cod Canal.

The New England District of the U.S. Army Corps of Engineers implements a Disposal Area Monitoring System (DAMOS) that has been monitoring the performance of the Mystic River CAD cells in terms of cap stability, sedimentation over the cap, mixing of cap and ambient sediment, and recolonization by benthic infauna.

These monitoring efforts include video surveys of the sub-tidal sediments within the river. Epi-benthic organisms (those that live on the sediment surface) were commonly observed, including flounder and other small and medium size bottom fish, shrimp and crabs. However, the benthic infaunal community of the Lower Mystic River was found to be highly stressed, and in a persistent state of early succession.

Mixing of surficial sediment from benthic infaunal burrow activities (i.e., bioturbation) was monitored by measuring the depth of reduction-oxidation features (referred to as apparent redox potential discontinuity; aRPD) in the surficial sediment. Burrowing depths and benthic infauna abundance were evaluated by measuring sediment-surface water boundary layer roughness (which can increase with greater infauna activity and by the activity of larger individuals), and direct observations of individual benthic infauna, tubes and feeding voids in the sediment profile. These measurements were performed both within the CAD cell caps, and in nearby reference areas that had not been dredged or capped in the recent past.

During its June 2000 survey, ENSR (2001) noted the low biodiversity of the infaunal community of the Boston Inner Harbor and Lower Mystic River, both in the CAD cell caps and at reference stations. Mean aRPD depths (means calculated for individual cap areas) were 2.44 centimeters (cm) or less. However, because of the degraded state of the benthic environment, ENSR also concluded that the impact of the dredging, filling, and capping associated with the CAD cells was far less than if the Mystic River and Boston Inner Harbor area had provided higher quality benthic habitat conditions.

Surveys of the infaunal community were also conducted in 2004 (ENSR, 2007) and 2009 (USACE, 2012), with results similar to those of the 2000 survey. The 2009 survey found the average aRPD depth was less than 2.6 cm, with a maximum observed depth of 5 cm. These conditions were attributed to periodic low oxygen or anoxic conditions at the sediment-water interface due to nutrient and organic loading in the river, and frequent physical disturbances to the surficial sediment.

The executive summary of the 2009 monitoring report (USACE, 2012) stated:

> "The biological mixing zone, estimated by measuring the oxidized layer at the surface of sediment cores, averaged less than 2.6 cm for both CAD cell stations and reference cores. The shallow biological mixing documented in 2009 supported

earlier findings of harbor-wide conditions limiting benthic recolonization to a state of perpetual early succession throughout the harbor. Very fine layering was also apparent at the surface of both CAD cell and reference cores further supporting the persistence of shallow sediment mixing in Boston Harbor."

In other words, there is strong evidence that the sub-tidal, benthic infaunal communities of the Mystic River and Boston Inner Harbor are in poor condition, based on the surveys performed as part of the Army Corps of Engineer's monitoring efforts for the CAD cells. The poor state of the infaunal community in the Mystic River was attributed to nutrient and organic loading that results in low oxygen or anoxic conditions at the sediment-water interface, and frequent physical disturbances of the surficial sediment.

3.0 FIELD INVESTIGATION

GZA performed a sediment coring and sampling program within the study area in August 2013 and March-April 2015. GZA conducted surface water and groundwater seep sampling in May 2015. The following sections discuss the methods and result of these sampling programs.

3.1 SURFACE WATER & GROUNDWATER SEEPS

Neither GEI nor Menzie-Cura analyzed surface water samples for potential contaminants of concern. To evaluate whether groundwater discharge may be resulting in potentially harmful concentrations of disposal site-related contaminants, GZA collected near-shore surface water samples and samples of groundwater visibly discharging at seeps in the inter-tidal zone.

3.1.1 Field Program

Four near-shore surface water samples and two groundwater seep samples were collected on May 21 and 22, 2015, at the locations shown on Figure 2. Field measurements of temperature, pH, dissolved oxygen, conductivity, and turbidity were made at each sample location.

Samples were collected during low tide. Surface water samples were collected using a peristaltic pump from shallow water (less than one foot deep) near the shore. Samples were collected in a manner that limited the disturbance of the sediment at the collection site, and the entrainment of suspended sediment with the water samples. The samples collected for metals analyses were filtered in the field using a 0.45 micrometer (μm) filter; the SVOC and EPH samples were not filtered.

During low tide, groundwater seeps visibly discharge from preferential flow paths through the inter-tidal sediment. Samples of seep discharge were collected by digging a small depression in the sediment at various seep locations, waiting 30 to 45 minutes for suspended sediment in the depression to dissipate, and then collecting water samples with a peristaltic pump.

Surface water and seep samples were analyzed for the following parameters:

- SVOCs via United States Environmental Protection Agency (EPA) Method 8270C (with selected ion monitoring (SIM) for PAHs);
- EPH via MassDEP method; and
- Dissolved MCP 14 metals, plus hexavalent chromium (various methods).

Chemical analyses were conducted by ESS Laboratory of Cranston, Rhode Island. The analytical laboratory reports for the surface water and groundwater seep samples are presented in Appendix B.

3.1.2 Analytical Results

Table 1 presents field measurements collected at each surface water and groundwater seep sampling location. Groundwater seep SWS-3, collected adjacent to the Low pH Area of the disposal site (Figure 2), had lower pH, conductivity, and turbidity than did the other seep sample (SWS-6). The relatively lower pH of this seep sample likely reflects the discharge of groundwater from the Low pH Area. Similarly, the relatively lower conductivity may reflect the discharge of groundwater rather than draining of surface water that had infiltrated the ground during high tide.

Dissolved oxygen and pH were lower at surface water sample location SW-3 than at the three other surface water locations. These differences at SW-3 may reflect the influence of groundwater discharge on near-shore surface water quality at low tide.

Table 2A presents analytical results for SVOCs, and Table 2B presents results for dissolved metals and EPH. Tables 2A and 2B also present chronic surface water quality benchmark concentrations (WQBs) for the protection of aquatic organisms. Contaminant concentrations in surface water at or below the WQBs are considered to present little or no potential for adverse toxic effects to exposed aquatic biota; concentrations above the WQBs may present a risk of harm to exposed sensitive aquatic organisms. Furthermore, certain of the WQBs are Massachusetts Surface Water Standards (MSWSs; 314 CMR 4.00), and exceedance of those MSWSs would be considered Readily Apparent Harm under the MCP at 310 CMR 40.0995(3)(b)(1)(b).

The primary source of the WQBs are the U.S. Environmental Protection Agency (USEPA) Recommended Ambient Water Quality Criteria (NRWQC) for chronic exposures in saltwater. The NRWQC are also the source of the MSWSs. Surface water benchmarks from other sources were used when NRWQCs were not available. The sources of those secondary benchmarks are presented in the notes to Tables 2A and 2B.

One SVOC (DEHP) and several PAH compounds were detected in the surface water sample SW-6 (Table 2A). Concentrations reported were all below the WQB concentrations, therefore these compounds are not likely to present a risk of harm to aquatic biota. No other surface water or groundwater seep samples contained detectable levels of SVOCs or PAHs. EPH fractions were detected twice: C11-C22 aromatics were detected in groundwater seep sample SWS-3, and C19-C36 aliphatics were detected in surface water sample SW-6. The reported concentrations of EPH fractions were well above the screening values. However, since these organic contaminants have a high affinity to adsorb to sediment particulates,

these detections likely represent suspended or dissolved particulates in the water samples. Chemicals adsorbed to particulates are not bioavailable and therefore are not considered toxic; the researchers that developed the benchmark for C19-C36 aliphatics note that this fraction is unlikely to be toxic to aquatic organisms because the concentration required to cause significant toxicity is lower than the aqueous solubility[3]. Similarly, the concentration of C11-C22 aromatics measured in SWS-3 likely represents non-toxic, particulate-bound EPH.

Dissolved arsenic, barium and zinc were each detected in two of the four surface water samples (Table 2B). The detected concentrations did not exceed WQBs. Cadmium and zinc were each detected in one of the two groundwater seep samples, but again at concentrations below the WQBs.

Arsenic was detected in both groundwater seep samples; the concentration in SWS-6 was below the benchmark, while the concentration in SWS-3 was nearly ten times higher than the benchmark concentration. While elevated concentrations of arsenic were detected in groundwater discharging from the vicinity of the Low pH Area, the concentration detected in the adjacent surface water sample (SW-3) was below the screening value. These data indicate that arsenic is diluted to concentrations below toxic levels upon discharge to surface water, and this mitigative effect is likely to be more pronounced during high tide. As previously noted, as part of the upland remediation, the Low pH Area will be remediated by ISS; that remediation program is expected to reduce or eliminate the discharge of high arsenic concentrations to surface water. Since the exceedance of the arsenic MSWS occurred in a groundwater seep and not in the nearby surface water sample, that condition does not meet the definition of Readily Apparent Harm.

3.2 SEDIMENT

GZA performed sediment coring and sampling programs within the study area in August 2013 and March-April 2015.

Sediment samples were collected for chemical analysis from the study area, and from locations within the Mystic River far enough away from the Wynn property that they were unlikely to have been significantly impacted by releases from the disposal site. The samples collected from the river far from the study area were used to represent "Local Conditions" for sediment contaminant levels. Local Conditions can be thought of as "anthropogenic background" concentrations in waterbodies and waterways. MassDEP defines Local Conditions as ubiquitous contamination in aquatic environments resulting from general urban and suburban land use rather than identifiable, individual sources (MassDEP, 1996; Guidance Document Section 9.4.2.1). Contaminant sources that contribute to Local Conditions include permitted discharges, storm water discharges, and non-point sources typically associated with developed areas. Such sources can also include other MCP disposal sites; however, chemical data collected within the boundaries of other disposal sites are not appropriate for representing Local Conditions.

Whole-sediment toxicity tests were also performed for 15 selected samples from the study area, and for three of the Local Conditions samples.

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[3] Toxicity tests for such low solubility chemicals are sometimes performed using co-solvents to increase the dissolved concentrations above the aqueous solubility.

3.2.1 Field Program

Sediment samples were collected from the study area on an approximately 100-foot grid pattern. The sampling grid spans the length and width of the bay, and covers most of the southwest shoal area (Figure 2).

The 2013 and 2015 sediment sampling effort generated chemical data for 204 sediment samples from 60[4] sample locations from the study area (Figure 2), and 30 Local Conditions sediment samples from 12 sample locations in the Mystic River (Figure 3). GZA retained the marine services contractor CR Environmental, Inc. (CR) of Falmouth, Massachusetts, to retrieve sediment cores and grab samples under the observation of GZA field staff. CR used a Hemisphere Sub-meter GPS with HYPAK hydrographic survey software to locate the survey vessel over each planned sampling grid location, and to record actual sampling locations. A sediment core and a grab sample were collected at each sample location. Grab samples were collected from surficial sediments (0' to 0.5' below sediment surface [bss]) with a Ted Young 15-liter grab sampler. These grab samples provided the large surficial sample volume needed for toxicity testing and co-located chemical analyses.

At each sample location, between one and three deeper samples were collected from the sediment cores. For the 2013 sampling effort, cores were collected using a 12-foot long, 4-inch inside diameter (I.D.) core tube lined with a flexible plastic (polyethylene) liner. For the 2015 sampling round, cores were collected using a 10-foot long, 3-inch I.D. core tube with a ridged plastic (polycarbonate) liner. Core tubes were advanced using a pneumatically driven vibracore head.

Target depth intervals for samples collected from sediment cores were 0.5' to 2', 2' to 4', 4' to 6', 6' to 8' and 8' to 10' bss. In some cases sediment strata of interest did not fit within these depth intervals (e.g., a stratum of interest may have spanned 3' to 5' bss). In those cases the samples collected did not conform to these target depth intervals. For purposes of general discussion of analytical results and depiction on sampling plans, samples that did not conform to the target depth intervals were included in the interval group representing the shallowest portion of the non-conforming sample. For example, a sample collected from 3'to 5' bss was grouped with the 2' to 4' samples for discussion purposes and representation on plans.

To facilitate discussion of sediment data and the evaluations of water side site limits and remediation goals, the following sediment depth intervals are referred to herein as:

- "surficial" = 0' to 0.5' bss (grab samples);
- "shallow" = 0' to 2' bss (the sample group referred to as "shallow" includes samples from both the 0' to 0.5' bss and 0.5' to 2' bss depth intervals);
- "deeper" = those samples collected at depth intervals greater than 2' bss.

[4] This does not include 18 sample locations (GZ-1 through GZ-18) in the head of the bay where six composite samples were analyzed for various constituents, and 18 discrete samples were analyzed for volatile organic compounds. Those samples were collected in 2013 to support the 401 Water Quality Certification application for proposed navigational dredging. Sediment represented by those samples will be dredged for navigation regardless of whether they present a risk to the environment; therefore, analytical results for those samples are not included in this Supplemental Phase II evaluation.

Samples were analyzed for the following parameters:

- SVOCs via EPA Method 8270C (with SIM for the PAHs)
- EPH via MassDEP method
- MCP 14 metals (various methods)
- Total Organic Carbon (TOC) via Lloyd-Kahn method

In addition, 13 study area surficial samples[5] collected in 2015 were analyzed for VOCs via EPA Method 8260B to provide data necessary for the 401 Water Quality Certification in accordance with 314 CMR 9.07(6). Results for those VOC analyses are presented in this Supplemental Phase II and are discussed briefly below. However, VOCs in sediment generally present little risk to aquatic organisms, and the results were not a significant factor in delineating water-side site boundaries or developing risk-based clean-up goals. Therefore, aside from a brief discussion of the analytical results, the VOCs were not considered further in this Supplemental Phase II.

All samples submitted for chemical analysis were analyzed for metals, and a sub-set of samples was analyzed for the other chemical classes. Those samples were selected using the same criteria as listed above for the selection of samples at depth, and to provide general data coverage within the study area and at various depths.

Laboratory reports for the chemical analyses are presented in Appendix C.

Grain size sieve analyses were also performed for 62 of the sediment samples collected during the 2013 sampling round. Laboratory reports for the sieve analyses are presented in Appendix D.

In addition to the 72 study area and Local Conditions sample locations described above, samples were collected from 10 locations in the Mystic River upstream of the Wynn property during the 2013 sampling effort. Samples were collected both upstream and downstream of the Amelia Earhart Dam. These samples were intended to represent Local Conditions, but were ultimately not used for the assessments presented in this Supplemental Phase II. Because most of the 2013 upstream sample locations were in close proximity to other former MCP release sites, and several of the samples were highly contaminated, GZA was concerned that those samples may be within the boundaries of other MCP Sites and not representative of Local Conditions. In addition, several of the samples were upstream of the Amelia Earhart Dam, which is a freshwater habitat. Although the 2013 upstream data were not used for this Supplemental Phase II, the locations of those samples, and a table of analytical results, are included in Appendix E; laboratory data sheets are included in Appendix C.

3.2.2 Field Observations and Grain Size Analyses

The 2013 vibracore penetration depths in sediment were generally 10 to 12 feet bss (the core tube lengths used in 2013 were 12 feet); however, coring in the southwest shoal area, and in an area along the east shore of the head of the bay often hit refusal at shallower depths, typically between 4 feet and 6 feet bss. This was likely due to a coarser sediment

[5] These are in addition to the 18 samples analyzed for VOCs in 2013 for the navigational dredge program.

texture at that depth in those areas (Figure 2). Sediment recoveries varied between locations, but in other areas were generally between 8 feet and 11 feet.

The 2015 vibracore penetration depths were generally 8 to 10 feet bss (the core tube lengths used in 2015 were 10 feet). Sediment recoveries varied between locations, but were typically observed to be between 5 feet and 8 feet.

Appendix F presents sediment core logs for 2013 and 2015, which include field descriptions of sediment textures. Sediments generally consisted of fine-grained material with varying amounts of organics. The material within about 0 to 5 feet bss was predominately clayey silt with varying amounts of organics. Below about 5 feet bss sediments were typically stratified layers of sand and silt, with some locations containing organic silt and clay.

Sediment samples collected from selected 2013 sample locations were run for sieve analysis for grain size distribution. Appendix D presents sieve analyses for these samples, as well as laboratory descriptions of sediment texture. Figure 2 also presents sampling depths for the samples run for sieve analyses, and percentage of each sample that consisted of sediment particulates finer than sand (the percentage of the sample, by weight, passing through a #200 sieve represents silt and clay size particulates).

Descriptions of impacted or contaminated material were based on odors and visual observations, including consistency and color. Several cores collected along the western shore at the head of the bay contained layers of white and red, paste-like material, and/or yellow, non-organic, granular material.

3.2.3 Analytical Results

Chemical analyses were conducted by ESS Laboratory of Cranston, Rhode Island. The analytical laboratory reports for the sediment samples are presented in Appendix C, and analytical data for the sediment samples are presented in the following tables:

- Table 3A – Metals and TOC;
- Table 3B – PCBs;
- Table 3C – SVOCs ;
- Table 3D – PAHs and EPH; and
- Table 3E – VOCs.

Tables 3A through 3E also present sediment screening benchmarks for the protection of benthic organisms in marine environments. The primary source of the sediment benchmarks were the Effect Range-Low (ERL) and Effects Range-Median (ERM) values developed by Long et al. (1995). If an ERL or ERM was not available for a contaminant, we consulted other lists of comparable marine sediment benchmarks published in the literature or by regulatory agencies. The table notes cite the sources of the sediment benchmarks. ERL values are conservative screening values intended to be protective of sensitive marine benthic invertebrates; contaminant concentrations below or equal to the ERLs are considered to have little potential to cause toxic effects. ERM values were intended to identify contaminant concentrations above which there was a high probability

that toxic effects would occur. Tables 3A through 3E highlight detected concentrations that exceed the ERLs and those that also exceed the ERM values.

Threshold-type sediment benchmark concentrations such as the ERLs have come to be recognized as conservative because contaminant concentrations between the ERLs and ERMs often do not cause significant toxic effects. An example of this is the freshwater, consensus-based Threshold Effect Concentrations developed by MacDonald et al. (2000), which are threshold-type benchmarks for freshwater sediment (i.e., comparable to ERLs for marine sediment). Based on its experience with risk assessments performed for freshwater sediment, MassDEP determined in 2007 that these values would no longer be used as screening levels for most metals, and instead adopted the Probable Effect Concentrations (comparable to ERMs) as the freshwater screening levels. Consistent with this approach, GZA focused on exceedances of ERM values when assessing the potential for toxicity in study area sediments.

VOCs analyses were limited to a small sub-set (13 samples) of the 2015 surficial sediment samples. These VOC analyses were run to provide data to support the 401 Water Quality Certification application for remediation dredging. VOCs in sediment are generally considered to present a low level of ecological risk unless they are detected at high concentrations, and associated with an on-going source. Several VOCs were detected, but at low concentrations, with most reported concentrations well below 1 milligram per kilogram (mg/kg). Based on these considerations, VOCs were not considered contaminants of concern for the purposes of this Supplemental Phase II, and were not carried through the evaluations used for the other detected contaminants.

Chemical analytical results are discussed in greater detail in Section 4.0 below in the context of water-side site delineation and the development of risk-based clean-up goals.

3.2.4 Toxicity Test Results

Laboratory toxicity tests were performed by New England Bioassay of Manchester, Connecticut, a division of GZA. Whole sediment toxicity tests were performed using the marine amphipod *Leptocheirus plumulosus*. The test organisms were exposed to the study area and Local Conditions samples in the laboratory for 28-days. Test endpoint measurements were amphipod survival, biomass[6], and reproduction.

Whole sediment toxicity tests were performed on six of the 2013 study area samples, on nine of the 2015 study area samples, and on three of the 2015 Local Conditions samples. The toxicity test results for the 2015 Local Conditions samples were used as "reference" samples to assess whether the 2015 study area samples exhibited significant toxic effects. Samples used for toxicity tests were "co-located" with chemical analysis samples; the samples for chemical analyses and toxicity tests were field split samples collected from the same mixing bowl after homogenization.

Appendix G presents the 2013 and 2015 laboratory toxicity test reports. For these tests, sub-samples of each sediment sample are placed in culture containers, with overlying

[6] Biomass is a measure of growth that integrates survival and growth. For the toxicity test endpoints it is measured as the total dry weight of surviving individuals after a 28-day exposure divided by the number of individuals exposed at the initiation of the test.

laboratory water. Five such replicates are prepared for each study area sample, for each reference (i.e., Local Conditions) sample, and for a laboratory control sample. Laboratory control sediments consisted of artificially prepared sediment material following EPA guidance (EPA, 2000). For the 2015 toxicity tests, NEB ran tests on both an artificial and a natural laboratory control. Each culture container was inoculated with 20 individual *L. plumulosus*.

After the 28-day exposure period, the surviving amphipods were harvested, counted, and weighed. As the 28-day exposure period is enough time for the exposed individuals to reproduce, the offspring in each replicate are also harvested and counted, and the reproduction endpoint is expressed as the number of offspring per surviving adult. The survival measurement endpoint (percent survival) was defined as the number of surviving organisms divided by the initial count of test organisms (i.e., 20). The biomass measurement endpoint was defined as the total dry weight of surviving individuals divided by the initial count of test organisms (i.e., 20).

Toxicity tests were also performed on three of the samples collected from upstream locations in the Mystic River in 2013; however, as discussed above, the results for those samples were not considered applicable to the evaluations presented in this Supplemental Phase II. The toxicity test results for the 2013 upstream samples are included in the 2013 toxicity test report presented in Appendix G.

Table 4A presents a summary of the results for the 2013 toxicity tests, and Table 4B presents a summary for the 2015 toxicity tests. For each run of toxicity tests, the results for the laboratory control sediments are intended primarily as quality control for the laboratory methods. Comparing results for site samples to those for site-specific reference samples (Local Conditions) is the preferred method for evaluating sediment toxicity.

2013 Toxicity Test Results

Because the 2013 effort did not include site-specific reference samples (the samples collected upstream in the Mystic River were not considered to be appropriate Local Conditions samples), the 2013 study area samples were conservatively compared to the laboratory control samples to evaluate whether there were toxic effects. None of the 2013 study area samples resulted in significantly lower survival rates compared to the lab control (Table 4A). Four of the six study area samples resulted in reduced biomass compared to the lab control; the two samples that did not have significantly reduced biomass were GZ-116T and GZ-135T (Table 4A). All six study area samples exhibited reduced reproduction compared to the lab control; therefore, we considered all the 2013 study area samples to exhibit significant toxicity.

2015 Toxicity Test Results

To evaluate whether the 2015 study area samples resulted in significant toxicity to amphipods, the results for the study area samples were compared separately to each of the three Local Conditions samples (Table 4B). All three Local Conditions samples met the EPA (2000) criteria for acceptable test results for control samples, i.e., at least 80% survival and with measureable growth and reproduction. Only one study area sample resulted in significantly reduced survival; GZ-217 resulted in an average survival rate of 57%, which was significantly lower than all three Local Conditions samples tested. Three study area

samples (GZ-203, GZ-209, and GZ-223) had biomass results comparable to all three of the Local Conditions samples. The remaining nine study area samples had significantly reduced biomass compared to at least one of the Local Conditions Samples. Five of the nine study area samples (GZ-203, GZ-207, GZ-209, GZ-223, and GZ-225) had reproduction values that were comparable to all three Local Conditions samples. Based on these results, study area samples GZ-203, GZ-209, and GZ-223 are considered non-toxic to exposed benthic organisms.

Note that survival in both the artificial and natural laboratory control runs with the 2015 samples was below 80%, which is the EPA minimum standard for quality control for laboratory procedures. Had the Local Conditions samples also exhibited low survival, mortality may have been attributable to that particular run of toxicity tests, and would have called into question the utility of the toxicity test run for assessing potential toxicity in study area samples. However, all three Local Conditions samples met the quality control standards (greater than 80% survival and measurable growth and reproduction), indicating that the low survival rate was specific to two lab control set-ups, and not due to a condition present across the entire test run.

4.0 WATER-SIDE SITE DELINEATION AND RISK-BASED CLEAN-UP GOALS

The limits of the water-side site were delineated based on chemical concentrations detected in the Local Conditions data. Clean-up goals for sediment were developed based on the toxicity test results.

4.1 WATER-SIDE SITE LIMITS

The delineation of the water-side site limits focused on contaminant concentrations within the top two feet of sediment (referred to herein as "shallow sediments"). Since the biotic zone of the sediment of the Mystic River and the study area has been observed to be limited to the top few centimeters, evaluating deeper sediment is not necessary to characterize exposure and potential risk to environmental receptors.

Arsenic, lead and mercury were identified as the main Contaminants of Potential Ecological Concern (COPECs) in Site sediment. The process used to select COPECs for the water-side site was as follows:

1. For the study area data set (shallow), identify contaminants detected in more than 20 percent of the samples analyzed.
2. For the contaminants identified in Step 1, compare the 95th percentile[7] for study area samples to an Upper Threshold Limit (UTL; see below) for the Local Conditions data set (shallow), and identify contaminants for which the study area 95th percentile was substantially higher (generally two times higher) than the Local Conditions UTL.
3. For those contaminants identified in Steps 1 and 2 above, develop plans showing sediment contaminant concentrations at each sample location.
4. Using the plans developed in Step 3 above, look for spatial patterns in contaminant concentrations in the shallow (0' to 2' bss) sediment samples that may be useful for delineating Site limits. This step involved identifying portions of the study area

[7] Value below which 95% of the values in the data set fall.

represented by contiguous grid sample locations with contaminant concentrations (shallow sediments) that are on the low end of the range detected within the study area.

5. Draw preliminary Site boundaries based on the patterns identified in Step 4 above to identify contiguous groups of shallow sample locations representing the preliminary on-Site and off-Site portions of the study area.
6. Perform inferential statistical tests (two-sample hypothesis tests) to evaluate whether the data groups identified in Step 5 exhibit significantly higher contaminant concentrations compared to the Local Conditions samples. Iteratively re-draw preliminary disposal site boundaries so that data sets representing off-Site areas have contaminant concentrations that are not significantly higher than those in Local Conditions samples.
7. Identify COPECs as those contaminants identified in Step 6 above that have on-Site concentrations that are significantly elevated above the Local Conditions concentrations.

The COPEC list developed through the seven-step process outlined above was further validated by:

- Comparing concentrations of contaminants not included in that list to concentrations detected in soil samples collected during the extensive soil boring program conducted on the upland property. This soil boring program was conducted to support the precharacterization of soils for disposal associated with the future construction activities. These borings were installed between October 2014 and March 2015, resulting in the collection and analysis of 1,718 samples. Details concerning the soil boring program will be included in the forthcoming RAM Plan for construction activities; however, for convenience, a table summarizing the analytical data, along with an exploration location plan, is included as Appendix H. This comparison was done to evaluate the likelihood that releases at the upland property had significantly contributed to concentrations detected in study area sediments; and
- Comparing the concentrations detected in study area sediments to sediment quality benchmark concentrations to assess whether concentrations likely to be harmful to benthic invertebrates were widely distributed within the study area sediment, or found in limited areas or isolated samples.

4.1.1 Contaminants with greater than 20 percent Frequency of Detection

Table 5 presents summary statistics for the study area shallow sediment data set; the statistics presented are frequency of detection, maximum detected, and average and median concentrations. Only those contaminants detected at least once in the study area data set are shown on Table 5. Table 5 also presents the ERL and ERM sediment screening benchmarks. As discussed above, because of the conservative nature of the ERLs, and the generally impacted nature of Mystic River sediment, our assessment focused on exceedances of ERM values when evaluating the potential for toxicity in study area sediments.

Toxic actions of individual PCB and PAH compounds are additive, and therefore these parameters are usually evaluated as concentrations of total PCBs and total PAHs. PCBs and PAHs were evaluated as total concentrations for this COPEC assessment.

Contaminants with frequencies of detection greater than 20% in the study area shallow data set (see Table 5) are:

- Total PAHs;
- Total PCBs;
- DEHP;
- Total EPH;
- Arsenic;
- Mercury;
- Lead;
- Barium;
- Beryllium;
- Cadmium;
- Chromium;
- Nickel;
- Silver;
- Vanadium; and
- Zinc.

4.1.2 Contaminant Distribution Maps

The Local Conditions UTLs used for these comparisons are the upper 95% confidence limit on the upper 95th percentile (UTL95-95), which was calculated for each contaminant using the EPA ProUCL v5.0 (ProUCL) statistical package. Table 6 presents 95th percentile values for study area shallow samples, and UTL95-95 values for Local Conditions shallow samples. Contaminants with study area 95th percentile values more than twice the Local Conditions UTL95-95 values are arsenic, lead, mercury, total PCBs, total EPH and DEHP.

Figures 4A, 4B, 4C, 4D, 4E, and 4F present sediment sample locations with arsenic, lead, mercury, DEHP, PCB and total EPH data, respectively. Chemical concentration boxes shown on Figures 4A through 4F are shaded to depict different contaminant concentration ranges; the levels of shading were chosen relative to the ERL and ERM sediment benchmark concentrations (no sediment benchmarks are available for total EPH), and taking into consideration the full range of concentrations of each contaminant detected. These figures present concentrations for all depth intervals sampled; however, as discussed, the water-side site limits were based on the shallow samples collected from the 0' to 0.5' and 0.5' to 2' depth intervals.

Chemical analyses were not performed for shallow samples at the four sample locations near the northwest corner of the head of the bay. As noted above, that area will be dredged for the navigational channel improvements, and several composite samples were collected and analyzed in support of the permitting for that dredge program. Discrete samples collected in that area for the purposes of planning the sediment remediation program began at the 4' to 6' depth interval to characterize conditions in sediment that may represent the navigational dredging sub-grade. Given the concentrations noted in these deeper samples, as well as the general distribution of contaminants throughout the adjacent areas, this area was included within the boundaries of the water-side site.

As discussed below, an apparent pattern in the concentrations of arsenic, lead and mercury in shallow (0'- 2') sediment samples was useful for defining water-side site limits, whereas PCBs, DEHP, and EPH were not detected in a discernible pattern. Accordingly,

the Site limits shown on Figures 4A through 4F were based on the spatial distribution of arsenic, lead and mercury concentrations. Further information concerning the distribution of these compounds is provided in section 4.1.3 below.

4.1.3 Delineation of Water-Side Site Boundaries

Based on the delineation process outlined above, the area of the water-side site has been measured as approximately 8.44 acres. The landward limit of the water-side site was defined as the mean high tide line (equivalent to the mean high water (MHW) shown on the plans) based on the definition of dredged material in the 401 Water Quality Certificating regulation (314 CMR 9.00).

The patterns of arsenic, lead and mercury concentrations in shallow sediment samples are described as follows:

Arsenic (Figure 4A):

- Within the head of the bay, shallow samples near the west, north and east shores have arsenic concentrations that are commonly greater than the ERM, and in many cases are more than twice the ERM;
- Within the head of the bay, samples within the channel bottom and along the eastern channel slope (generally in the area between sample locations GZ-205 and GZ-108) have arsenic concentrations commonly between the ERM and one-half of the ERM;
- Samples in the channel bottom and eastern channel slope in the neck of the bay have arsenic concentrations that are generally less than one-half the ERM; and
- The lowest arsenic concentrations (most detected concentrations are <28.1 mg/kg) are found within the southwest shoal area (except for the three samples at the northwest limit of the shoal area) and the head of the bay area, represented by sample locations GZ-210, GZ-211, and GZ-212.

Lead (Figure 4B):

- Within the head of the bay, shallow samples near the west, north and east shores have lead concentrations that are commonly greater than the ERM, and many are several times higher than the ERM;
- Within the head of the bay, samples within the channel bottom and along the eastern channel slope (the area between sample locations GZ-123, GZ-108, GZ-107, and GZ-206) and in the area between sample locations GZ-214 and GZ-107 have lead concentrations that are slightly above the ERM (218 to 288 mg/kg);
- The channel bottom and eastern slope of the channel at the mouth of the bay have lead concentrations slightly below the ERM (165 to 216 mg/kg, except at GZ-202 which has 237 mg/kg), although GZ-127 has a surficial concentration of 369 mg/kg; and
- The lowest lead concentrations are found within the southwest shoal area (except for the three samples at the northwest limit of the shoal area) and the head of the bay area represented by sample locations GZ-210, GZ-211, and GZ-212 (most detected concentrations are <133 mg/kg).

Mercury (Figure 4C):

- Within the head of the bay, shallow samples near the northwest, north and east shores, and at the northern end of the channel bed, have mercury concentrations that are commonly greater than twice the ERM, and many have mercury concentrations several times higher than the ERM;
- The remainder of the samples from the head of the bay (except for the area represented by sample locations GZ-210, GZ-211, and GZ-212), and the bed of the channel through the neck of the bay, have mercury concentrations in shallow samples that are one to two times the ERM;
- The eastern slope of the channel in the head of the bay area, represented by sample locations GZ-210, GZ-211, and GZ-212, has mercury concentrations that are generally between the ERL and ERM;
- The portion of the southwest shoal area represented by sample locations GZ-137, GZ-136, and GZ-140, and the area represented by sample location GZ-127, have surficial sediment mercury concentrations slightly above ERM; and
- The remainder of the southwest shoal area (aside from the locations described in the previous bullet item) have surficial sediment mercury concentrations between the ERL and ERM.

Concentrations patterns for arsenic, lead and mercury were useful for developing the water-side site boundaries. Based on the general patterns described above, two groups of contiguous samples were identified as having relatively low shallow sediment concentrations of arsenic, lead and mercury that may be comparable to the Local Conditions shallow sediments:

- Off-Site East: data group comprising samples along the eastern slope of the channel within the neck of the bay, and the head of the bay area represented by sample locations GZ-210, GZ-211, and GZ-212.
- Off-Site West: data group comprising most of the southwest shoal area (except the area represented by sample location GZ-127) and a short section of the east slope of the channel (represented by sample locations GZ-122 and GZ-124).

These two areas are depicted on Figures 4A through 4F.

As discussed below, concentrations of DEHP, total PCBs and total EPH (Figures 4D, 4E, and 4F, respectively) did not exhibit spatial patterns that were helpful for developing water-side site boundaries. In addition, the highest concentrations were not found in the head of the bay which, as discussed, is the area most likely to exhibit impacts from historic releases at the upland property. Therefore, these contaminants do not have a spatial concentration pattern that would suggest that releases at the upland portion of the disposal site resulted in concentrations in sediment that are discernibly higher than Local Conditions. The patterns of DEHP, total PCBs and total EPH concentrations in shallow sediment samples are described as follows:

DEHP (Figure 4D):

- DEHP concentrations in the surficial (0' to 0.5') samples of the study area are low, with most concentrations between non-detect (<0.227 mg/kg) and 10.5 mg/kg. One surficial sample (at location GZ-119) had a higher concentration (131 mg/kg).
- Many of the 0.5' to 2' and 2' to 4' samples collected in the neck of the bay northward to sample locations GZ-116 and GZ-114 had concentrations in the hundreds and low thousands of mg/kg (up to 2,900 mg/kg at GZ-209).
- Concentrations are low in surficial samples near the west, north and eastern shores of the head of the bay (the portions of the study area that have been impacted the most by releases at the upland property, based on arsenic, lead and mercury data), ranging from non-detect to 7.28 (in the surficial sample at GZ-216).
- Four samples from the southwest shoal were analyzed for DEHP, and those concentrations were low (2.75 to 30.1 mg/kg).

Total PCBs (Figure 4E):

- Total PCB concentrations in surficial sediment samples in the channel through the neck and head of the bay ranged from 0.667 to 3.39 mg/kg.
- Many of the 0.5' to 2' and 2'to 4' samples collected in the neck of the bay northward to sample location GZ-114 had higher concentrations, on the order of 9 mg/kg up to 113 mg/kg.
- Concentrations in surficial samples in the north-central and north-western portion of the head of the bay (from about sample locations GZ-116 and GZ-208 northward) were less than 2 mg/kg, except for the 3.278 mg/kg detected at GZ-104. Deeper samples in this area were higher, generally in the range of 3.935 to 6.77 mg/kg; however the 2' to 4' samples at GZ-114 and GZ-209 had 59.7 and 20.3 mg/kg, respectively.
- Concentrations in shallow samples of the intertidal area near the eastern shore of the head of the bay, and in the area represented by sample locations GZ-210, GZ-211 and GZ-212, were low; most are less than 1 mg/kg, with the highest being 1.702 mg/kg in the surficial sample at GZ-221.
- PCB concentrations in four samples from the southwest shoal were low, ranging from 0.071 to 1.491 mg/kg.

Total EPH (Figure 4F):

- Most total EPH concentrations in surficial sediment samples throughout the study area are in the low hundreds of mg/kg (generally in the 100 to 250 mg/kg range); however, several are in the mid- to high hundreds, ranging up to 1,274 mg/kg at GZ-104. There is not an apparent spatial pattern to the higher concentrations.
- Concentrations in the deeper samples are mostly higher than 1,150 mg/kg and as high as 4,312 mg/kg; however this is not the case for the intertidal area at the eastern half of the head of the bay.
- Deeper samples in the intertidal area in the eastern half of the head of the bay (with the exception of GZ-104) are mostly less than 100 mg/kg, although four

sample locations adjacent to the east shore have 0.5' to 2' samples with concentrations ranging from 116 to 338 mg/kg.

4.1.4 Statistical Analyses: Water-Side Site Compared to Local Conditions

Portions of the study area were considered to be part of the water-side site if the data set representing that area had significantly higher concentrations (at the 95% confidence level) compared to the Local Conditions data set. GZA used ProUCL to compare contaminant concentrations in study area samples to concentrations in Local Conditions samples.

Sediments are considered to have been measurably impacted by releases at the disposal site if they:

- Are within the contaminant migration pathway for releases at the disposal site, and
- Have contaminant concentrations significantly elevated above Local Conditions concentrations.

Such sediments are considered part of the disposal site in accordance with the definition of disposal site in the MCP at 310 CMR 40.0006(1)(b).

It is clear that at least a portion of the study area is within the MCP disposal site because of the very high concentrations of arsenic, lead and mercury in sediment at the head of the bay. To delineate the boundaries of the water-side site, we evaluated whether any portions of the study area have sediment concentrations that are comparable to Local Conditions, and thus were not significantly impacted by releases from the upland portion of the disposal site.

GZA performed multiple runs of statistical tests, using ProUCL, comparing shallow Local Conditions data to data for various groupings of samples within the vicinity of the Off-Site East and Off-Site West areas described above. Those statistical tests were used to identify the Off-Site East and Off-Site West areas depicted on Figures 4A through 4F, and thereby delineate the boundaries of the water-side site. Note that the small on-Site area around sample location GZ-127 was delineated based on the relatively high concentrations of arsenic and lead in the shallow samples compared to the other samples in the Off-Site West area; the delineation was not based on statistical tests.

Appendix I summarizes the statistical methods that were used to compare the study area concentrations to the Local Conditions concentrations, and presents the ProUCL results documenting those statistical runs.

Table 7 summarizes the results of the final runs of the statistical tests. Table 7 shows that concentrations of arsenic, lead, and mercury in shallow sediment in the Off-Site East and Off-Site West areas are not significantly elevated above Local Conditions, and therefore are not part of the disposal site. We also conducted statistical analyses to confirm that arsenic, lead and mercury concentrations within the on-Site area are, in fact, elevated above Local Conditions. As noted on Table 7 and discussed in Appendix I, when all of the lead data for Local Conditions shallow samples are included in the statistical test runs the water-

side site lead levels are not significantly elevated above Local Conditions. However, when the high outlier Local Conditions value of 770 mg/kg is removed, the lead concentrations in the water-side site are significantly elevated above Local Conditions. Removing the Local Conditions high outlier value does not change the results of the comparison to the Off-Site East and Off-Site West data sets.

GZA also ran statistical tests on the other contaminants with frequencies of detection > 20% to evaluate whether concentrations in water-side site shallow sediments are elevated above Local Conditions. As shown on Table 7, none of the other contaminants tested had surficial sediment concentrations significantly elevated above Local Conditions.

The highest concentrations of silver, selenium and zinc appear to be concentrated along the shoreline of the head of the bay. We also ran statistical tests on a sub-set of the shallow on-Site samples (i.e., those near the shore of the head of the bay) to evaluate whether the concentration of these metals may be elevated above Local Conditions in localized areas within the water-side site. The results of those statistical tests indicated that silver, selenium and zinc concentrations are not significantly elevated above Local Conditions even in those localized portions of the water-side site where their concentrations are high relative to the remainder of the water-side site.

The COPEC selection process is summarized on Table 6. Arsenic, lead and mercury were the only contaminants with on-site concentrations that exceeded Local Conditions, and therefore they were the selected as COPECs in sediment.

Arsenic, lead and mercury have been detected in soil on the upland property at high concentrations and with high frequencies of occurrence (Tables 6). Therefore, it is likely that releases from the upland property resulted in the elevated concentrations in sediment of the water-side site. Furthermore, as discussed above, the pattern of arsenic, lead and mercury concentrations in sediment are consistent with the upland property being the source of those contaminants.

The water-side site boundaries shown on Figures 4A thru 4F reflect the results of iterative runs of statistical tests. Summary statistics were calculated for the different sediment depth intervals for the water-side site area, the Off-Site East and Off-Site West portions of the study area, and for the Local Conditions samples. These summary statistics are presented on Tables 8A, 8B, 8C and 8D, respectively. Marked differences in concentrations of arsenic, lead and mercury in shallow sediment are evident when comparing maximum, average and median concentrations for the water-side site to Off-Site East and Off-Site West sample sets. These differences are also reflected in the histogram charts presented in Figures 5A, 5B and 5C for arsenic, lead, and mercury, respectively.

Spatial patterns of contaminant concentrations in sediment below 0.5' bss likely reflect the locations of historic releases of contaminants at the disposal site, and the hydrodynamics of the Mystic River and the water-side area. The head of the bay is well integrated with the upland property, where releases historically occurred. The mouth of the bay and the southwest shoal area are more exposed to wave action and the flow of the Mystic River. For these reasons, sediment conditions in the head of the bay are more apt to reflect releases at the Site compared to the more southerly portions of the study area. Because of the long history of releases at the upland property, historic dredging in the water-side, and the subsequent accretion of sediments, the most highly impacted areas would be expected to

have high contaminant concentrations through much of the sediment depth profile. Within the head of the bay, there is a discernible pattern of arsenic, lead and mercury concentrations being markedly higher in the 0.5' to 2' and 2' to 4' depth intervals than in the surficial (0' to 0.5') sediment. That pattern is less pronounced at the mouth of the bay and in the southwest shoal area (i.e., the deeper concentrations are less frequently higher than the surficial concentrations, and the magnitude of the differences in surficial and deeper concentrations are smaller).

In order to further assess the impact of the elimination of the other frequently detected sediment contaminants from the list of sediment COPECs, we looked at the frequency of detection, average[8] and median values for the upland property soil boring data, and the frequency with which concentrations in sediment exceed the ERMs.

- Total PCBs: PCBs were detected in just 12 % of the 1,719 soil samples analyzed (Table 7), and the average and median concentrations were 2.84 and 0.732 mg/kg, respectively. Given that the extent of PCB contamination in the upland property appears to be limited, and that overall concentrations are low, it is unlikely that the upland property contributed a sufficient mass of PCBs to the study area to result in the concentrations detected in sediment. Furthermore, there is a MassDEP fish advisory for PCBs in the Mystic River upstream of the Amelia Earhart Dam, suggesting that PCBs are a common contaminant in the Mystic River. For these reasons, PCBs are not considered a site-related sediment COPEC.
- DEHP: DEHP was detected in just 7 % of the 1,719 upland soil sample analyses. Three soil samples from one boring (H09) exhibited high DEHP concentrations, which drive the high overall average upland property concentration of 530 mg/kg. If the data from this single boring are removed from the calculation, the average soil concentration is 6.09 mg/kg, which is comparable to the median of 2.06 mg/kg. Given that the high concentrations of DEHP in soil were largely limited to one boring location, the low frequency of detection, the generally low concentrations in soil, and the fact that DEHP concentrations in shallow sediment are not elevated above Local Conditions, DEHP is not considered a sediment COPEC.
- Total PAHs: PAHs were detected in 23 % of the 1,719 upland property soil samples analyzed. Average and median concentrations in soil are comparable to concentrations in sediment, suggesting that releases at the upland property may have contributed to the concentrations detected in sediment. However, only one percent of the total PAH concentrations detected in shallow sediment exceed the ERM. Because total PAH concentrations in sediment are generally low, and the on-Site concentrations are not significantly higher than Local Conditions, PAHs are not considered a COPEC in sediment.
- Total EPH: Only limited analyses for EPH fractions have been conducted on the upland property; however, TPH analyses were performed for soil, and those data were used as a substitute for evaluating the upland property as a potential source of EPH fractions in sediment. TPH was detected in 43 % of the 1,719 soil samples analyzed, and average and median concentrations are comparable to those detected in the shallow on-Site samples, but substantially lower than those

[8] The upland soil averages were calculated using one-half of the laboratory reporting limits to represent samples with non-detect results.

values for the deeper sediment intervals. Based on these soil data, it is likely that upland releases contributed to EPH fractions detected in the sediment of the study area. However, given that sources of petroleum to industrialized, urban waterways such as the Mystic River are ubiquitous, and that total EPH concentrations in shallow sediment are not significantly elevated above Local Conditions, total EPH is not considered a COPEC in sediment.

- Barium: Barium was detected at high frequencies in upland property soil samples, and at concentrations comparable to those detected in sediment. There is not an ERM available for barium; however, this metal is generally recognized as having low toxicity in sediment. For this reason, and because on-Site concentrations of barium are not elevated above Local Conditions, barium is not considered a COPEC in sediment.
- Beryllium: Beryllium was not analyzed in upland property soils. It was detected in all of the on-Site shallow sediment samples but at low concentrations; an ERM is not available for beryllium. Because the on-Site concentrations of beryllium in sediments are not elevated above Local Conditions concentrations, it was not included as a COPEC in sediment.
- Cadmium: Cadmium was detected in 15 % of the 1,719 soil samples analyzed for the upland property. The reported concentrations (average of 1.59 mg/kg and median of 2.94 mg/kg) were low, and were comparable to those detected in shallow sediments. None of the detected concentrations in shallow sediment samples exceeded the ERM, and on-Site concentrations are not significantly elevated above Local Conditions. Accordingly, cadmium was not considered a COPEC in sediment
- Chromium: Chromium was detected in nearly all of the 1,719 soil samples analyzed for the upland property, but concentrations were low (average of 27.4 mg/kg and median of 22.3 mg/kg). Concentrations detected in shallow sediments were also low; none of the detected concentrations in shallow on-Site samples exceeded the ERM. Based on the above considerations, and on the fact that the on-Site concentrations in shallow sediment are not significantly elevated above background, chromium was not included as a COPEC in sediment.
- Nickel: Nickel was not analyzed for in upland soils. It was detected in all of the shallow on-Site sediment samples but at low concentrations; only one percent of the shallow on-Site samples had nickel concentrations that exceeded the ERM. Nickel was not considered a COPEC in shallow sediment given the above considerations, and because the on-Site concentrations in shallow sediment are not significantly elevated above background.
- Vanadium: Vanadium was not analyzed for in upland property soils; it was detected in all of the on-Site shallow sediment samples. An ERM is not available for vanadium, and aquatic toxicity information is generally lacking. Inferential statistical tests for vanadium indicate that on-Site concentrations are not elevated relative to Local Conditions, and this is borne out by comparing on-Site and Local Conditions vanadium summary statistics. The Local Conditions maximum concentration is 484 mg/kg, compared to a maximum on-Site of 354 mg/kg, and the Local Conditions average and median concentrations are both substantially higher than for on-Site. Based on these considerations, vanadium was not included as a COPEC in sediment.
- Zinc: Zinc was not analyzed for in upland property soils. It was detected in all of the shallow on-Site sediment samples but at relatively low concentrations;

only 14 percent of the shallow on-Site samples exceeded the ERM. Zinc was not considered a COPEC in sediment given the above considerations, and because the on-Site concentrations in shallow sediment are not significantly elevated above background.

- Copper: For the 2005 to 2007 data set, copper was analyzed in just two water-side sediment samples; detected concentrations were 210 and 520 mg/kg in samples SED-3 and SED-10, respectively, collected by Menzie-Cura. Since Menzie-Cura did not analyze copper in the Mystic River reference samples, copper was conservatively included as a contaminant of concern due to the absence of background information. Although GZA did not analyze study area or Local Conditions samples for copper, Breault, Durant, and Robbat (2005) conducted extensive sediment sampling and chemical analyzes in the Upper and Lower Mystic River, Chelsea River and Boston Inner Harbor. Reported copper concentrations were nearly always greater than 100 mg/kg, and concentrations in the range of 210 to 520 mg/kg were common. Based on this data, it is unlikely that copper is a disposal site-related sediment COPEC in the water-side site. Furthermore, since copper has a very high affinity to bind with sulfides (which are likely present in high concentrations in the anaerobic sediment of the Mystic River) and organic carbon, the copper in the Mystic River sediments is not likely to be bioavailable and thus presents a low potential for risk of harm to benthic invertebrates.

4.2 RISK-BASED CLEAN-UP GOALS

Risk-based clean-up goals were developed based on the results of the whole sediment toxicity tests using *L. plumulosus* as discussed in Section 3.2.4.

Clean-up goals were established for arsenic, lead and mercury, which are the three sediment contaminants with concentrations significantly elevated above Local Conditions within the on-Site area, and which are the three contaminants most likely to be related to releases at the upland property. Clean-up goals for these metals were Apparent Effects Thresholds (AET), which are the highest concentrations of each metal among samples that did not exhibit significant toxicity compared to the Local Conditions samples (NJDEP, 2015, Gries and Waldo, 1996).

The bar graphs presented in Figures 6A, 6B, and 6C show concentrations of arsenic, lead, and mercury, respectively, in the 2013 and 2015 toxicity test samples (including the Local Conditions samples). Those figures also indicate the three study area samples that did not result in toxicity to *L. plumulosus* (GZ-203, GZ-209, and GZ-223). The highest concentrations of these metals among the three non-toxic sediment samples were arsenic at 38.6 mg/kg, lead at 250 mg/kg, and mercury at 1.03 mg/kg. These concentrations were set as clean-up goals for remediation of on-Site sediments to eliminate potentially significant risks to exposed benthic invertebrates.

GZA prepared plans depicting concentrations of arsenic, lead and mercury to look for spatial patterns in concentrations of these contaminants in shallow samples (Figures 4A, 4B, and 4C). The surficial depth intervals are also highlighted on Figures 4A, 4B and 4C if the detected concentrations exceed sediment clean-up goals developed from the sediment toxicity tests. Section 5.0 below discusses the delineation of the portion of the water-side site that needs to be remediated in order to eliminate risk to environmental receptors.

5.0 DELINEATION OF THE AREA REQUIRING REMEDIATION TO ATTAIN A PERMANENT SOLUTION

The following sections discuss the depth and extent of sediment remediation which would be necessary to achieve a Permanent Solution, as defined by the MCP, for the water-side site. While the specific remedial approach will be developed as part of the Supplemental Phase III report, which will be submitted by June 2016, GZA's preliminary evaluation of remedial options has concluded that the selected remedial option will likely involve some form of dredging to remove the upper layer of contaminated sediment, and replacing that sediment with clean sand. That conceptual alternative is implicit in the following discussion.

5.1 HORIZONTAL EXTENT OF REMEDIATION

Figures 4A, 4B and 4C highlight locations where concentrations of arsenic, lead or mercury, respectively, exceed the clean-up goals for surficial samples. All such samples are within the on-Site portion of the water-side site as developed in Section 4.1 above.

Figure 7 compiles the exceedances of arsenic, lead and mercury in surficial samples at each sample location, showing which samples represent sediments with concentrations exceeding the goal for any of these metals. Based on the spatial pattern of samples with one or more of the target metals above clean-up goals, approximately 6.82 acres of the 8.44-acre water-side site would need to be remediated to eliminate risk to benthic invertebrates. The landward limit of the area to be dredged is the same as for the water-side site limit in most areas (i.e., the MHW line). However, the remediation line is slightly seaward of the water-side site limit along the eastern and northern shores at the head of the bay. The dredge limit in those areas is seaward of a bulkhead and area of rip-rap armoring to be constructed as part of the navigational channel portion of the project, and the dredging of sediment behind the proposed bulkhead and beneath the proposed rip rap has already been permitted as part of that project. Therefore the dredge volume in those areas has been accounted for by that permitting effort; the limit of dredging for the purpose of the MCP was drawn along the seaward edge of that work to avoid double counting that area and volume of dredging. Some stretches of shore line within the head of the bay have steep slopes comprised of rock, hard rubble or existing bulkheads; the limit of dredging was drawn along the 0-foot contour in those areas, because the upper tidal area is comprised of hard habitat rather than soft sediment. Invertebrates living on hard substrates will not be exposed to contaminants in the soft sediments which were the subject of this assessment.

Two portions of the on-Site area would not need to be remediated. These areas are represented by sample locations GZ-207, GZ-208, and GZ-209 on the eastern slope of the channel, and sample locations GZ-221, GZ-222, and GZ-223 near the eastern shore of the head of the bay.

5.2 DEPTH OF REMEDIATION

Many species of benthic invertebrates live and feed in burrows in the sediment; such benthic species are referred to as sediment infauna. As discussed above, the depth of burrowing by benthic infauna in the sub-tidal portions of the Mystic River is limited to the surficial 2 to 5 cm, likely due to the fine sediment texture and anaerobic conditions at the sediment-water

interface. Therefore, potential exposure and risk to benthic invertebrates is primarily associated with the surficial sediment. The primary goals of the remedial program will be to provide clean substrate suitable as habitat for benthic organisms, and to physically isolate the residual contaminants in deeper sediments.

Construction and maintenance infauna burrows results in both vertical and horizontal mixing of sediment particles; this process is referred to as "bioturbation." The future remedial approach will need to address the full thickness of the bioturbation zone.

Limiting the degree of burrowing through the clean sand backfill can be accomplished by providing a thickness of clean material that is greater than the burrowing depth of most species likely to be found in the Mystic River. The U.S. Army Corps of Engineers, Dredging Operations and Environmental Research Program (DOER) (Clarke, Palermo and Sturgis, 2001) provides guidance for subaqueous cap thickness considerations to limit bioturbation of the contaminated sediment below the backfill. In coastal marine waters, DOER guidance recommends a thickness to accommodate a surficial layer of 10 cm that is often found to be intensively mixed, and an additional 10 to 35 cm to accommodate a mid-depth bioturbation zone, for a total thickness of 20 to 45 cm (0.66 to 1.5 feet). This guidance notes that the use of caps in the lower range of the 20 to 45 cm thickness should be supported by sufficient knowledge of the local infaunal community. This may also be accomplished by incorporating a physical barrier to burrowing in the bottom layers of the cap (e.g., gravel or stone layer, or geotextile fabric).

As discussed in Section 2.3.2, the U.S. Army Corps DAMOS program has found that the sediment infaunal community of sub-tidal sediment within the Mystic River is in a "state of perpetual early succession," and that burrowing depths average only about 2.6 cm bss, with maximum observed burrowing depth of 5 cm. DAMOS attributes the poor condition of the sediment infaunal community to a consistently stressed environment due to high organic loading and periods of low dissolved oxygen in bottom water, and the frequent physical disturbance inherent to a working harbor. For the sub-tidal portions of the proposed remediation area, the poor condition of the benthic community of the Mystic River and the shallow depths of infaunal burrowing support the use of a thickness of clean backfill at the lower end of the recommended 20 to 45 cm thickness.

Approximately 41% (2.83 acres) of the dredge area lies within the inter-tidal zone. Replacing the existing contaminated sediment of the inter-tidal zone with clean sediment material is more likely to improve environmental conditions and foster a healthy infaunal community than providing a clean backfill layer in sub-tidal areas of the Mystic River. This is largely due to the fact that the inter-tidal zone is less likely to become anaerobic. The inter-tidal area is, by definition, near the water surface, subject to wave action, and exposed to the air on a daily (or near daily) basis.

Because the inter-tidal area represents a more promising opportunity for developing a healthy infaunal community, GZA recommends a clean backfill thickness that is adequate to accommodate the burrowing depth of the majority of infauna that may be expected to use the area. Burrowing depths of common infaunal species that are expected to use the inter-tidal areas include:

- Soft-Shell Clam (*Mya arenaria*): Soft-shell clams have been described as having siphons long enough to allow them to live 20 to 35 cm bss

(http://www.wallawalla.edu/academics/departments/biology/rosario/inverts/Mollusca/Bivalvia/Myoida/Myidae/Mya_arenaria.html), and a large specimen was described as having a siphon long enough to reach the sediment surface from 20 cm bss (Newell and Hidu, 1986). Thomson (2011) studied changes in soft-shell clam burrowing depths in response to the presence of a predator (green crabs, *Carcinus meanas*). Thompson found that on average soft-shell clams would burrow slightly deeper in the presence of green crabs to depths of about 14.5 cm in mud or sand, and to about 13.5 cm in gravel.

- Atlantic Razor Clam (*Ensis directus*): Atlantic razor clams prefer unstable clean fine sand with small amounts of silt, and generally burrow to 3 to 18 cm, although oxidized layers have been observed to depths of 30 cm in colonized sediments (Ovcharenko, Olenin and Gollasch [http://www.europe-aliens.org/pdf/Ensis_americanus.pdf]). However, Atlantic razor clams have been cited as burrowing as deep as 70 cm (2.3 feet) bss (Winter and Hosoi, 2011).
- Sand worms (*Nereis virens*): Sand worms burrow from 7 to 45 cm bss; in soft sediment, commercial diggers typically strip the surficial 13 cm, and then dig down to 38 cm to capture the larger commercially valuable individuals.
- Blood worms (*Glycera dibranchiata*): Commercial diggers dig as deep as 25 cm to capture commercially valuable individuals of blood worms (Creaser et al., 1983).

Based on the expected depths of infaunal burrowing discussed above, the upper limit of the maximum DAMOS recommended cap depth of 45 cm would accommodate most of the burrowing that may be expected in the inter-tidal area. However, 45 cm is just at, or only slightly deeper than, the upper end of the range of burrowing depths cited for soft-shell clams and sand worms, and is just 65% of the upper end of the range of depths cited for Atlantic razor clams (70 cm). In addition, there are certain areas of the inter-tidal portion of the remediation area where the excavated sub-grade sediments will contain arsenic, lead or mercury concentrations well above the clean-up goals. For these reasons, GZA recommends a remediation depth on the order of 2 feet (60 cm) within the inter-tidal portions of the dredge area.

6.0 HUMAN HEALTH

The potential for human exposure to water-side site sediments is considered low. Under current conditions, access to the inter-tidal portions of the disposal site is limited by access impediments to the adjacent properties, so that human contact with inter-tidal sediment would be by trespassing or via boat access. A similar situation is expected to exist under future conditions, as the planned development does not include direct access to the inter-tidal area. Because of poor water quality and poor aesthetic quality, exposure to inter-tidal sediment via wading, or to sub-tidal sediment via swimming, would be considered an uncommon occurrence. Finally, shell fishing on, or in the vicinity of, the disposal site is currently prohibited, and will likely be prohibited for the foreseeable future.

Furthermore, the remediation of the water-side site will eliminate potential human exposure to the sediments with the highest contaminant concentrations.

Notwithstanding the low exposure potential, GZA performed screening-level risk calculations for trespasser exposure to the inter-tidal sediment of the water-side site under current conditions. These calculations, presented in Appendix J, used the maximum detected contaminant concentrations in shallow sediment samples collected from wadable

(above -5 feet NAVD88) portions of the water-side site, and assumed that trespassers would access the inter-tidal sediment during 31 events per year (once per week from April through mid-November). Even with these conservative assumptions, the calculated risk estimates for trespassers did not exceed MCP risk limits; the non-cancer Hazard Index (HI) was 0.4 (the MCP risk limit is 1), while the Estimated Lifetime Cancer Risk (ELCR) was $1x10^{-5}$ (which is the MCP risk), with arsenic and lead as the drivers of the calculated risks. Given the conservative assumptions used for the risk screening, it is GZA's opinion that even under current conditions the sediments do not represent a significant risk to human health.

It is GZA's opinion that the potential exposure of humans to water-side site contaminants via consumption of fish is also de minimis. Game fish that may be found within the water-side site and Lower Mystic River are transient, and are likely to be present for relatively short periods. Furthermore, the currently degraded environmental conditions of the Lower Mystic River result in a perpetual early successional benthic community consisting of low abundances of small individuals of opportunistic species. Such a community provides poor feeding grounds for epibenthic species (including bottom feeding fish). These factors likely further reduce typical residence time for game fish at the water-side site.

Furthermore, most of the water-side site will be remediated such that exposure of benthic species to disposal site contaminants will be greatly reduced or eliminated. This will further reduce or eliminate the potential for game fish to bioaccumulate contaminants from the water-side site.

7.0 SUBSTANTIAL HAZARD EVALUATION

Conditions at the water-side site were evaluated as to whether they present a potential Substantial Hazard under the MCP (310 CMR 40.0956(2)). The MCP states that a condition of No Substantial Hazard to the Environment would exist if steps have been taken to eliminate or mitigate any of the following conditions affecting an environmental resource at a site:

(a) Evidence of stressed biota attributable to the release at the disposal site, including, without limitation, fish and wildlife kills or abiotic conditions;
(b) The visible presence of oil, tar or other non-aqueous phase hazardous material in soil within three feet of the ground surface over an area equal to or greater than two acres, or over an area equal to or greater than 1000 square feet within one foot of the sediment surface;
(c) Continuing discharge of contaminated groundwater to surface water where the levels of the oil or hazardous material attributable to the release already exceed Massachusetts Surface Water Standards;
(d) Continuing discharge of contaminated groundwater to surface water where surface water and/or sediment concentrations of oil and/or hazardous material attributable to the release already pose a significant risk;
(e) Migration of oil or hazardous material to additional environmental media or resource area where resultant exposures would have the potential to pose a significant risk of harm in the future; or
(f) Ecological risk of harm such that recovery would be substantially more difficult or would require more time if conditions were to remain unremediated for even a short period of time.

Arsenic detected in groundwater seep sample SWS-3 exceeded the MSWS, but the arsenic concentration in the adjacent surface water sample SW-3 was below the MSWS. Therefore, condition 310 CMR 40.0956(2)(c) above does not appear to be present at the Site. Furthermore, the high concentration of arsenic in seep sample SWS-3 appears to be related to the adjacent Low pH Area in the upland property, which will be remediated as part of the upland clean-up. Therefore, discharge of groundwater seeps with high arsenic concentrations will be eliminated.

None of the other Substantial Hazard conditions listed above are present at the water-side site.

8.0 CONCLUSION

GZA has developed additional data on surface water and sediment contaminant levels for the water-side portion of the Former Everett Staging Yard disposal site. Based on an analysis of this data, GZA has identified the portion of the water-side site which will require remediation in order to achieve a Permanent Solution. The remedial alternative for achieving a Permanent Solution will be presented in a Supplemental Phase III Report for the Site to be submitted by June, 2016.

GZA performed a Substantial Hazard Evaluation for the on-Site portion of the water-side in accordance with the MCP at 310 CMR 40.0956(2). A condition of Substantial Hazard is not present within the water-side site.

This Supplemental Phase II Report will be submitted electronically through MassDEP's eDEP online filing system. A copy of the Comprehensive Response Action Transmittal Form (BWSC-108) is included in Appendix K.

Public involvement activities have been conducted in accordance with 310 CMR 40.1403(3)(d) and 40.1406(1). Copies of the notices are included as Appendix L.

The Disposal Site has been designated as a Public Involvement Plan (PIP) Site in accordance with Section 40.1404 of the MCP. This Supplemental Phase II Report may be revised based on comments received through the PIP process.

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TABLES

TABLE 1

SURFACE WATER AND GROUNDWATER SEEP FIELD MEASUREMENTS

Wynn Resort Casino

Everett, Massachusetts

	Surface Water				Ground Water Seeps	
Sample ID	SW-3-05-21-15	SW-6-05-21-15	SW-10-05-22-15	SW-11-05-22-15	SWS-3-05-21-15	SWS-6-05-21-15
Sample Date	05/21/2015	05/21/2015	05/22/2015	05/22/2015	05/21/2015	05/21/2015
pH	6.76	8.35	8.1	8.3	5.95	7.15
Temperature (°C)	14.6	20.3	15.2	15.1	15.6	17.8
Conductivity (µS)	OR	OR	OR	OR	16.04	OR
Dissolved Oxygen (percent)	74.8	94.7	96	124	10.2	7.3
Turbidity (NTU)	14	6.79	14.5	11	3.88	8.2

Notes:

1. Field parameter collected by GZA personnel in the field using a YSI D.O. Meter on May 21 and 22, 2015.
2. "OR" = over range

TABLE 2A

SURFACE WATER AND GROUNDWATER SEEP SEMI-VOLATILE ORGANIC COMPOUND RESULTS

Wynn Resort Casino

Everett, Massachusetts

		Surface Water Samples				Surface Water Seep Samples	
Sample ID Sample Date Analyte	Water Quality Benchmarks	SW-10-05-22-15 05/22/2015	SW-11-05-22-15 05/22/2015	SW-3-05-21-15 05/21/2015	SW-6-05-21-15 05/21/2015	SWS-3-05-21-15 05/21/2015	SWS-6-05-21-15 05/21/2015
Semi-Volotile Orgonic Compounds							
1,2,4-Trichlorobenzene	5.4	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
1,2-Dichlorobenzene	42	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
1,3-Dichlorobenzene	NA	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
1,4-Dichlorobenzene	129	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
2,4,5-Trichlorophenol	11	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
2,4,6-Trichlorophenol	NA	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
2,4-Dichlorophenol	NA	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
2,4-Dimethylphenol	NA	<46.7	<51.5	<46.7	<46.7	<46.7	<46.7
2,4-Dinitrophenol	NA	<46.7	<51.5	<46.7	<46.7	<46.7	<46.7
2,4-Dinitrotoluene	370	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
2,6-Dinitrotoluene	NA	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
2-Chloronaphthalene	NA	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
2-Chlorophenol	NA	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
2-Methylphenol	NA	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
2-Nitrophenol	NA	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
3,3'-Dichlorobenzidine	NA	<18.7	<20.6	<18.7	<18.7	<18.7	<18.7
3+4-Methylphenol	NA	<18.7	<20.6	<18.7	<18.7	<18.7	<18.7
4-Bromophenyl-phenylether	NA	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
4-Chloroaniline	129	<18.7	<20.6	<18.7	<18.7	<18.7	<18.7
4-Nitrophenol	NA	<46.7	<51.5	<46.7	<46.7	<46.7	<46.7
Acetophenone	NA	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
Aniline	NA	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
Azobenzene	NA	<18.7	<20.6	<18.7	<18.7	<18.7	<18.7
bis(2-Chloroethoxy)methane	6,400	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
bis(2-Chloroethyl)ether	NA	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
bis(2-chloroisopropyl)Ether	NA	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
bis(2-Ethylhexyl)phthalate	360	<5.6	<6.2	<5.6	**6**	<5.6	<5.6
Butylbenzylphthalate	3.4	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
Dibenzofuran	NA	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
Diethylphthalate	3.4	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
Dimethylphthalate	3.4	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
Di-n-butylphthalate	3.4	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
Di-n-octylphthalate	3.4	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
Hexachlorobutadiene	3.2	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
Hexachloroethane	94	<4.7	<5.2	<4.7	<4.7	<4.7	<4.7
Isophorone	1290	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
Nitrobenzene	668	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
N-Nitrosodimethylamine	NA	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
Phenol	400	<9.3	<10.3	<9.3	<9.3	<9.3	<9.3
Polycyclic Aromotic Hydrocorbons (SIM)							
2-Methylnaphthalene	72.16	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
Acenaphthene	55.85	<0.19	<0.19	<0.19	<0.19	0.21	<0.19
Acenaphthylene	306.9	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
Anthracene	20.73	<0.19	<0.19	<0.19	<0.19	0.2	<0.19
Benzo(a)anthracene	2.227	<0.05	<0.05	<0.05	**0.14**	0.05	<0.05
Benzo(a)pyrene	0.9573	<0.05	<0.05	<0.05	**0.18**	<0.05	<0.05
Benzo(b)fluoranthene	0.6774	<0.05	<0.05	<0.05	**0.28**	0.06	<0.05
Benzo(g,h,i)perylene	0.4391	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
Benzo(k)fluoranthene	0.6415	<0.05	<0.05	<0.05	**0.1**	<0.05	<0.05
Chrysene	2.042	<0.05	<0.05	<0.05	**0.2**	0.06	<0.05
Dibenzo(a,h)Anthracene	0.2825	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	7.109	<0.19	<0.19	<0.19	**0.33**	0.44	<0.19
Fluorene	39.3	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
Hexachlorobenzene	NA	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
Indeno(1,2,3-cd)Pyrene	0.275	<0.05	<0.05	<0.05	**0.17**	<0.05	<0.05
Naphthalene	193.5	<0.19	<0.19	<0.19	<0.19	0.42	<0.19
Pentachlorophenol	NA	<0.85	<0.84	<0.84	<0.84	<0.84	<0.84
Phenanthrene	19.13	<0.19	<0.19	<0.19	<0.19	0.27	<0.19
Pyrene	10.11	<0.19	<0.19	<0.19	**0.28**	0.29	<0.19

Notes:

1. Results are presented in µg/L unless otherwise noted
2. "<" indicates that an analyte was tested for but not detected above the Reporting Limit (RL).
3. Water Quality Benchmarks for semi-volatile organic compound list are from the National Oceanic and Atmospheric Association Screening Quick Reference Tables; 2013. The chronic concentration values for salt water is listed. (http://response.restoration.noaa.gov/sites/default/files/SQuiRTs.pdf)
4. Water Quality Benchmarks for polycyclic aromatic hydrocarbon list are Final Chronic Values (FCVs) used to develop equlibrium partitioning benchmarks for PAHs in sediment. These FCVs were developed by the U.S. EPA, and are presented in Procedures for the Derivation of Equilibrum Partitioning Sediment Benchmarks (ESBs) for the Proection of Benthic Organisms: PAH Mixtures, EPA-600-R-02-013. November, 2003.

TABLE 2B

SURFACE WATER AND GROUNDWATER SEEP METALS AND EXTRACTABLE PETROLEUM HYDROCARBON RESULTS

Wynn Resort Casino

Everett, Massachusetts

			Surface Water Samples				Groundwater Seep Samples	
Sample ID Sample Date Analyte	Water Quality Benchmarks		SW-10-05-22-15 05/22/2015	SW-11-05-22-15 05/22/2015	SW-3-05-21-15 05/21/2015	SW-6-05-21-15 05/21/2015	SWS-3-05-21-15 05/21/2015	SWS-6-05-21-15 05/21/2015
Dissolved Metals								
Antimony	500	b	<2.5	<2.5	<5.0	<5.0	<5.0	<5.0
Arsenic	36	a	6.6	<2.5	18.1	<2.5	**348**	6.2
Barium	200	b	<50.0	<25.0	25.1	27.3	<25.0	<25.0
Beryllium	100	b	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cadmium	8.8	a	<2.5	<2.5	<2.5	<2.5	7.6	<2.5
Chromium	27.4	b	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Hexavalent Chromium	50	a	<10	<10	<10	<10	<10	<10
Lead	8.1	a	<25.0	<25.0	<10.0	<10.0	<10.0	<10.0
Mercury	0.94	a	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	8.2	a	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Selenium	71	a	<5.0	<5.0	<10.0	<10.0	<10.0	<10.0
Silver	NA		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Thallium	17	b	<8.0	<10.0	<3.0	<3.0	<3.0	<4.0
Vanadium	50	b	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Zinc	81	a	30.8	<25.0	<25.0	26.6	<25.0	30.9
Extractable Petroleum Hydrocarbons (EPH)								
C11-C22 Aromatics1,2	2.8	c	<93.5	<94.3	<93.5	<95.2	**122**	<93.5
C19-C36 Aliphatics1	0.0001	c'	<93	<94	<93	**134**	<93	<93
C9-C18 Aliphatics1	0.04	c	<93	<94	<93	<95	<93	<93

Notes:

1. Results are presented in µg/L unless otherwise noted
2. "<" indicates that an analyte was tested for but not detected above the Reporting Limit (RL).
3. Marine water benchmarks are from the following sources:
   a. US EPA National Recommended Water Quality Criteria; 2015. The criterion continuous concentration (CCC) for salt water is listed. (http://www.epa.gov/waterscience/criteria/). These valuses have been adopted by MassDEP as Massachusetts Water Quality Standards.
   b. Nation Oceanic and Atmospheric Administration (NOAA) Screening Quick Reference Tables; 2013. The chronic concentration for salt water is listed.(http://response.restoration.noaa.gov/sites/default/files/SQuiRTs.pdf)
   c. Final Chronic Values (FCVs) for surface water exposures developed by Battelle on behalf of MassDEP, presented in "Sediment Tocicity of Petroleum Hydrocarbon Fractions" 2007, and available at: http://www.mass.gov/eea/docs/dep/cleanup/laws/tphbat.pdf
   c'. Battelle notes that the C19-C36 Aliphatic fraction is likely NOT toxic because the LC50 (concentration that causes mortality of 50 percent of exposed organisms) is higher than the aqueous solubility. (For such chemicals, toxicity tests are performed with co-solvents.)
4. Bolded values indicate an exceedance of the Water Quality Benchmark concentration for the specific analyte.

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Marine Sediment Benchmarks		GZ-101 0-0_5ft	GZ-101 2-4ft	GZ-101 4-6ft	GZ-101 8-9ft	GZ-102 2-4ft	GZ-102 4-6ft	GZ-102 6-8ft	GZ-102 8-10ft	GZ-103 2-4ft	GZ-103 4-6ft	GZ-103 6-7ft	GZ-104 2-4ft
Date Sampled			08/01/2013	08/01/2013	08/01/2013	08/01/2013	08/01/2013	08/01/2013	08/01/2013	08/01/2013	08/01/2013	08/01/2013	08/01/2013	08/06/2013
Depth (ft)			0-0.5	2-4	4-6	8-9	2-4	4-6	6-8	8-10	2-4	4-6	6-7	2-4
Type			Shallow	Deep	Deep	Deep	Deep	Deep	Deep	Deep	Deep	Deep	Deep	Deep
Group			ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Analyte	ERLs	ERMs												
Total Organic Carbo	NA	NA	59200	37800	45300	48000	75700	-	19700	-	50700	24600	50600	49100
Total Metals														
Antimony	NA	9.3 b	<2.4	<2.3	<3.1	<3.8	<3.0	<2.7	2.9	<3.9	<3.8	<1.2	<3.2	<2.6
Arsenic	8.2 a	70 a	**48.2**	**77.3**	**65.4**	**30.3**	**82.4**	**37.6**	**9.1**	**76.6**	**146**	**26.2**	**59.4**	**78.7**
Barium	NA	48 b	50.2	79.4	67.8	133	79.5	90.1	50	58	89.4	22.6	66.1	67.2
Beryllium	NA	NA	0.48	0.66	0.49	0.72	0.95	0.26	0.18	0.4	0.94	0.23	0.47	0.67
Cadmium	1.2 a	9.6 a	**1.9**	**4**	**1.66**	**4.91**	**4.57**	0.99	<0.53	**1.39**	**4.66**	0.61	**1.51**	**2.51**
Chromium	81 a	370 a	50.9	70.7	**93.5**	**183**	**85.4**	**97.8**	66.4	**115**	**157**	44.4	**116**	**82**
Lead	47 a	218 a	**280**	**435**	**257**	**710**	**486**	**215**	**226**	**251**	**495**	**65.6**	**238**	**439**
Mercury	0.15 a	0.71 a	**1.2**	**4.04**	**2.33**	**5.21**	**1.86**	**2.97**	**1.28**	**3.14**	**3.3**	**0.509**	**1.62**	**2.99**
Nickel	21 a	52 a	17.3	**28.5**	14.2	20.7	**30.5**	9.9	4	10.2	**33.8**	6.6	10	**25.4**
Selenium	NA	1 b	2.74	4.95	<3.13	5.57	6.32	3.03	<2.63	<3.89	6.6	<1.24	<3.17	7.55
Silver	1 a	3.7 a	**1.47**	**2.66**	**2.84**	**5.14**	**2.56**	**4.95**	**1.12**	**2.73**	**4.54**	0.67	**1.74**	**2.52**
Thallium	NA	NA	<2.40	<2.31	<3.13	<3.77	<3.01	<2.74	<2.63	<3.89	<3.75	<1.24	<3.17	<2.62
Vanadium	NA	57 b	63.7	151	124	192	153	122	82.3	169	244	52.3	123	120
Zinc	150 a	410 a	**364**	**506**	**193**	**833**	**612**	104	40.4	**153**	**575**	64.3	**160**	**414**

Wynn Resort Casino
Everett, Massachusetts

Sample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks		GZ-104 4-6ft 08/01/2013 4-6 Deep ON	GZ-104 6-8ft 08/01/2013 6-8 Deep ON	GZ-104T 0-0_5ft 08/06/2013 0-0.5 Shallow ON	GZ-105 2-4ft 08/01/2013 2-4 Deep ON	GZ-105 4-6ft 08/01/2013 4-6 Deep ON	GZ-105 6-9ft 08/01/2013 6-9 Deep ON	GZ-106 2-4ft 08/01/2013 2-4 Deep ON	GZ-106 4-6ft 08/01/2013 4-6 Deep ON	GZ-106 6-9ft 08/01/2013 6-9 Deep ON	GZ-107 0-0_5ft 08/01/2013 0-0.5 Shallow ON	GZ-107 2-4ft 08/01/2013 2-4 Deep ON	GZ-108 2-4ft 08/01/2013 2-4 Deep ON
	ERLs	ERMs												
Total Organic Carbo	NA	NA	21600	30500	45700	-	33700	49400	19400	51100	42400	-	19000	55600
Total Metals														
Antimony	NA	9.3 b	<1.3	<1.3	<4.5	<2.5	<2.2	<3.9	<2.8	<3.7	<3.3	<2.8	<4.4	<3.3
Arsenic	8.2 a	70 a	1.9	2.9	**182**	**110**	**93**	**204**	**87.5**	**108**	**39.5**	**33.4**	**117**	**86.9**
Barium	NA	48 b	9.9	17.2	190	64.6	63.5	55.7	64.9	40.2	50.4	46.4	121	59.1
Beryllium	NA	NA	0.2	0.33	1.5	0.62	0.61	0.56	0.91	0.53	0.57	0.5	0.81	0.81
Cadmium	1.2 a	9.6 a	<0.26	0.31	**8.98**	**3.17**	**2.68**	**2.45**	**4.28**	**1.79**	**1.25**	**1.51**	**2.53**	**3.71**
Chromium	81 a	370 a	10.1	16.4	**169**	**99.3**	**86.5**	**134**	**132**	**120**	**94.4**	60.6	**135**	**121**
Lead	47 a	218 a	<2.6	3.7	**1070**	**455**	**452**	**289**	**479**	**216**	**158**	**224**	**442**	**363**
Mercury	0.15 a	0.71 a	<0.024	<0.025	**2.51**	**2.57**	**2.1**	**2.22**	**2.18**	**2.13**	**1.34**	**1.12**	**1.7**	**3.42**
Nickel	21 a	52 a	6.3	9.6	**65.9**	**25.9**	**28.9**	14.5	**33.8**	16.1	10.6	18.8	**21.2**	**27.8**
Selenium	NA	1 b	<1.29	<1.31	9.54	8.23	8.29	<3.87	4.8	<3.70	<3.27	3.32	<4.35	4.66
Silver	1 a	3.7 a	<0.26	<0.26	**5.11**	**2.51**	**2.28**	**1.95**	**3.37**	**3.41**	**1.28**	**1.52**	**2.42**	**3.28**
Thallium	NA	NA	<1.29	<1.31	<4.49	<2.49	<2.19	<3.87	<2.85	<3.70	<3.27	<2.80	<4.35	<3.30
Vanadium	NA	57 b	12.9	20.9	354	173	151	135	206	231	101	64.9	182	186
Zinc	150 a	410 a	17.1	26.3	**1230**	**489**	**427**	**275**	**607**	**251**	141	**283**	**374**	**482**

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Marine Sediment Benchmarks		GZ-108 4-6ft	GZ-108 8-10ft	GZ-108T 0-0_5ft	GZ-109 0_5-2_5ft	GZ-109T 0-0_5ft	GZ-110B 0-0_5ft	GZ-110B 2-4ft	GZ-111 0-0_5ft	GZ-111 2-4ft	GZ-111 7-8ft	GZ-112 2-4ft	GZ-112 6-8ft
Date Sampled			08/01/2013	08/01/2013	08/06/2013	08/02/2013	08/06/2013	08/05/2013	08/05/2013	08/01/2013	08/01/2013	08/01/2013	08/01/2013	08/01/2013
Depth (ft)			4-6	8-10	0-0.5	0.5-2.5	0-0.5	0-0.5	2-4	0-0.5	2-4	7-8	2-4	6-8
Type			Deep	Deep	Shallow	Shallow	Shallow	Shallow	Deep	Shallow	Deep	Deep	Deep	Deep
Group			ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Analyte	ERLs	ERMs												
Total Organic Carbon	NA	NA	138000	55200	53400	80100	54200	71500	49100	55300	32900	28500	39900	29800
Total Metals														
Antimony	NA	9.3 b	<4.3	<5.2	<4.2	2.5	<2.7	<1.3	<1.6	<2.7	<4.4	<4.3	<3.7	<4.6
Arsenic	8.2 a	70 a	**89.7**	**135**	**51.5**	**229**	**75.7**	**28.5**	2.5	**28.8**	**77.6**	**9.5**	**94.8**	**87.3**
Barium	NA	48 b	51.8	68.4	66.9	40.8	45.9	14.1	16.7	50.5	49.1	38.1	60.9	48
Beryllium	NA	NA	0.71	0.91	0.75	<0.30	0.57	0.19	0.35	0.53	0.52	0.66	0.77	0.94
Cadmium	1.2 a	9.6 a	**2.49**	**4.12**	**2.19**	**1.52**	**1.68**	0.67	0.39	**1.45**	**2.46**	<0.86	**3.45**	**2.73**
Chromium	81 a	370 a	**162**	**168**	**88.2**	24.5	62	19	17.2	63.7	**107**	38.7	**138**	**115**
Lead	47 a	218 a	**257**	**328**	**286**	**394**	**209**	**208**	12.8	**226**	**190**	32.4	**357**	**178**
Mercury	0.15 a	0.71 a	**2.44**	**4.05**	**1.88**	**3.99**	**1.43**	**1.53**	0.09	**1.37**	**1.34**	<0.083	**3.7**	**2.68**
Nickel	21 a	52 a	19.3	18.8	**25.3**	13.5	**22.5**	6.2	10.3	18.9	11.5	20.6	**29.9**	**23.9**
Selenium	NA	1 b	<4.30	<5.25	<4.16	104	5.44	6.23	<1.61	<2.72	<4.44	<4.31	<3.75	<4.58
Silver	1 a	3.7 a	**2.44**	**3.26**	**2.17**	**1.46**	**1.59**	0.32	<0.32	**1.59**	**1.49**	<0.86	**3.5**	**1.69**
Thallium	NA	NA	<4.30	<5.25	<4.16	<1.45	<2.75	<1.25	<1.61	<2.72	<4.44	<4.31	<3.75	<4.58
Vanadium	NA	57 b	183	159	90.6	25	84.5	14.6	23.9	62.4	118	46.7	231	120
Zinc	150 a	410 a	**302**	**439**	**387**	**169**	**279**	**173**	28.8	**279**	**209**	81.6	**469**	**243**

Table 3A
SEDIMENT METALS AND TOTAL ORGANIC CARBON RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Marine Sediment Benchmarks		GZ-112T 0-0_5ft	GZ-113 2-4ft	GZ-113 4-6ft	GZ-113T 0-0_5ft	GZ-114 2-5ft	GZ-114 5-7ft	GZ-114T 0-0_5ft	GZ-115 2-5ft	GZ-115 5-7ft	GZ-115T 0-0_5ft	GZ-116 0_5-2ft	GZ-116 2-4ft
Date Sampled			08/06/2013	08/01/2013	08/01/2013	08/06/2013	08/01/2013	08/01/2013	08/06/2013	08/01/2013	08/01/2013	08/06/2013	08/02/2013	08/02/2013
Depth (ft)			0-0.5	2-4	4-6	0-0.5	2-5	5-7	0-0.5	2-5	5-7	0-0.5	0.5-2	2-4
Type			Shallow	Deep	Deep	Shallow	Deep	Deep	Shallow	Deep	Deep	Shallow	Shallow	Deep
Group			ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Analyte	ERLs	ERMs												
Total Organic Carbo	NA	NA	9910	31800	44400	73100	25300	39100	35000	21100	56200	42800	40800	117000
Total Metals														
Antimony	NA	9.3 b	<4.0	<1.8	<1.4	<1.8	<3.9	<1.3	<3.1	<3.4	<5.7	<3.5	1.6	<125
Arsenic	8.2 a	70 a	**54.2**	**46.4**	**78.3**	**39.7**	**152**	2.2	**41.4**	**323**	**204**	**45.7**	**249**	**235**
Barium	NA	48 b	63.6	30.8	36	21.9	163	15.4	77.5	34.4	61	77.8	33.9	49.6
Beryllium	NA	NA	0.69	0.33	<0.29	0.29	1.51	0.29	0.82	0.86	0.91	0.82	0.13	<0.05
Cadmium	1.2 a	9.6 a	**2.09**	**1.3**	**1.76**	0.95	**8.49**	0.26	**2.27**	**2.26**	**2.91**	**2.39**	0.85	**5.25**
Chromium	81 a	370 a	**83.7**	37.2	40.8	32.8	**212**	14.2	**94.2**	**172**	**201**	**95**	71.4	18.6
Lead	47 a	218 a	**266**	**187**	**246**	**101**	**667**	3	**288**	**283**	**344**	**281**	**467**	**192**
Mercury	0.15 a	0.71 a	**1.67**	**1.59**	**1.08**	**0.754**	**4.57**	<0.023	**1.15**	**4.19**	**2.51**	**1.26**	**2.7**	**2.52**
Nickel	21 a	S2 a	**24.1**	19.7	8.2	15.3	**38.2**	8.7	**27.6**	15.4	17.4	**28**	3.5	8.3
Selenium	NA	1 b	<4.02	2.75	26.8	1.81	11.7	<1.28	3.57	<3.38	<5.74	<3.46	4.36	<125
Silver	1 a	3.7 a	**2.07**	**1.16**	**1.74**	0.91	**4.02**	<0.26	**2.21**	**1.94**	**2.5**	**2.17**	**3.9**	**10.8**
Thallium	NA	NA	<4.02	<1.79	<1.37	<1.78	<3.91	<1.28	<3.09	<3.38	<5.74	<3.46	1.37	<250
Vanadium	NA	57 b	82	171	26.8	52.9	163	18.1	88	297	192	88.6	25	22.5
Zinc	150 a	410 a	**373**	**190**	**187**	147	**956**	24.1	**416**	**342**	**349**	**423**	67.5	**469**

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Marine Sediment Benchmarks		GZ-116 4-6ft	GZ-116 6-8ft	GZ-116 8-9ft	GZ-116T 0-0_5ft	GZ-117 2-4ft	GZ-117 4-6ft	GZ-117T 0-0_5ft	GZ-118A 0_5-1ft	GZ-118A 0-0_5ft	GZ-119 2-4ft	GZ-119T 0-0_5ft	GZ-120 2-4ft
Date Sampled			08/02/2013	08/02/2013	08/02/2013	08/06/2013	08/01/2013	08/01/2013	08/06/2013	08/05/2013	08/05/2013	08/01/2013	08/01/2013	08/02/2013
Depth (ft)			4-6	6-8	8-9	0-0.5	2-4	4-6	0-0.5	0.5-1	0-0.5	2-4	0-0.5	2-4
Type			Deep	Deep	Deep	Shallow	Deep	Deep	Shallow	Shallow	Shallow	Deep	Shallow	Deep
Group			ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Analyte	ERLs	ERMs												
Total Organic Carbo	NA	NA	-	57100	43200	47200	38400	28600	48400	17000	-	31100	-	-
Total Metals														
Antimony	NA	9.3 b	<1.5	<1.5	<1.5	<1.6	<2.7	<2.9	<3.3	<1.2	<1.3	<4.9	<2.8	<1.4
Arsenic	8.2 a	70 a	4	6.9	2.6	**75.7**	**153**	**112**	**38.6**	**106**	**155**	**93.1**	**33**	**357**
Barium	NA	48 b	21.7	24.1	28.7	32.6	63.2	44.4	74.8	25.2	23.5	66.7	65.4	11.8
Beryllium	NA	NA	0.44	0.41	0.55	0.49	0.9	0.55	0.81	0.29	0.25	0.85	0.7	0.26
Cadmium	1.2 a	9.6 a	0.37	0.42	0.47	1.04	**4.31**	**2.03**	**2.33**	0.46	0.59	**2.35**	**2.23**	0.73
Chromium	81 a	370 a	20.9	20.1	24.3	39.8	**150**	**120**	**90.7**	17.7	15.1	**133**	79.8	13.9
Lead	47 a	218 a	4.3	22	4.5	**116**	**350**	**164**	**245**	**69**	**80.6**	**202**	**213**	9.5
Mercury	0.15 a	0.71 a	<0.023	0.065	<0.023	**0.484**	**2.34**	**2.31**	**1.12**	**0.276**	**0.249**	**1.51**	**1.11**	<0.019
Nickel	21 a	52 a	11.7	10.9	13.8	15.8	**34.6**	20.4	**26.4**	8.6	7.4	17.2	**22.4**	9.5
Selenium	NA	1 b	<1.45	<1.46	<1.50	1.58	<2.68	<2.90	<3.32	<1.24	<1.30	<4.89	<2.82	<1.38
Silver	1 a	3.7 a	<0.29	<0.29	<0.30	0.97	**4.04**	**2.22**	**2.3**	0.57	0.67	**1.63**	**2.03**	<0.28
Thallium	NA	NA	<1.45	<1.46	<1.50	<1.56	<2.68	<2.90	<3.32	<1.24	<1.30	<4.89	<2.82	<1.38
Vanadium	NA	57 b	26.5	24.9	31.7	57.5	307	235	86	34.5	32.8	134	70.5	18
Zinc	150 a	410 a	34.1	52	42	**182**	**531**	**221**	**392**	70.9	73.3	**272**	**369**	**281**

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Marine Sediment Benchmarks		GZ-120T 0-0_5ft	GZ-121 2-4ft	GZ-121 4-6ft	GZ-121T 0-0_5ft	GZ-122 0_5-2ft	GZ-122 2-4ft	GZ-122T 0-0_5ft	GZ-123 0-0_5ft	GZ-123 2-4ft	GZ-123 4-6ft	GZ-124 0-0_5ft	GZ-124 2-4ft
Date Sampled			08/06/2013	08/01/2013	08/01/2013	08/06/2013	08/02/2013	08/02/2013	08/06/2013	08/01/2013	08/01/2013	08/01/2013	08/02/2013	08/02/2013
Depth (ft)			0-0.S	2-4	4-6	0-0.5	0.5-2	2-4	0-0.5	0-0.5	2-4	4-6	0-0.5	2-4
Type			Shallow	Deep	Deep	Shallow	Shallow	Deep	Shallow	Shallow	Deep	Deep	Shallow	Deep
Group			ON	ON	ON	ON	OFF-W	OFF-W	OFF-W	ON	ON	ON	OFF-W	OFF-W
Analyte	ERLs	ERMs												
Total Organic Carbo	NA	NA	70100	56500	-	61600	-	-	-	-	31300	61300	-	15500
Total Metals														
Antimony	NA	9.3 b	2.5	<4.9	<2.9	<3.4	2.6	<1.4	<1.2	<2.8	<4.1	<3.2	<1.3	<1.4
Arsenic	8.2 a	70 a	**172**	**49.1**	**31.3**	**27.3**	**51.5**	6.6	**14.2**	**26.8**	**59**	**39.9**	**20.2**	1.8
Barium	NA	48 b	52.5	82.8	62.3	71.4	29.4	14.5	23.9	67.2	62.2	54.2	21.2	7.9
Beryllium	NA	NA	0.34	0.79	0.61	0.78	0.3	0.23	0.19	0.75	0.62	0.46	0.26	0.27
Cadmium	1.2 a	9.6 a	0.83	**3.12**	**2.12**	**2.37**	0.72	0.3	0.42	**2.23**	**2.41**	**1.89**	0.6	0.29
Chromium	81 a	370 a	27.3	**173**	**91.4**	**93.2**	23.7	11.4	14.5	**89.2**	**144**	**104**	16	9.4
Lead	47 a	218 a	**306**	**288**	**165**	**240**	**298**	**63.5**	**126**	**232**	**218**	**150**	**89.1**	<2.9
Mercury	0.1S a	0.71 a	**0.74**	**1.62**	**0.99**	**1.01**	**0.233**	<0.023	**0.229**	**1.06**	**1.49**	**1.32**	**0.25**	<0.110
Nickel	21 a	S2 a	8.5	**22.9**	15.8	**26.1**	10.6	7.2	5.9	**25.6**	20.7	15.3	8.3	5
Selenium	NA	1 b	<1.63	<4.89	<2.91	<3.36	<1.37	<1.38	<1.18	<2.84	<4.09	<3.19	<1.26	<1.43
Silver	1 a	3.7 a	**1.65**	**2.73**	**1.36**	**2.33**	0.96	<0.28	0.65	**2.25**	**2.25**	**1.73**	0.65	<0.29
Thallium	NA	NA	<1.63	<4.89	<2.91	<3.36	<1.37	<1.38	<1.18	<2.84	<4.09	<3.19	<1.26	<1.43
Vanadium	NA	S7 b	39.3	194	106	79.4	46.6	17.6	19.8	81.9	187	107	26.9	13.3
Zinc	1S0 a	410 a	**157**	**344**	**211**	**408**	140	38.2	88.7	**382**	**284**	**186**	99.3	15.4

Wynn Resort Casino
Everett, Massachusetts

Sample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks ERLs	Marine Sediment Benchmarks ERMs	GZ-125A 0-0_5ft 08/05/2013 0-0.5 Shallow OFF-W	GZ-125A 2-4ft 08/05/2013 2-4 Deep OFF-W	GZ-125A 4-6ft 08/05/2013 4-6 Deep OFF-W	GZ-125A 8-9ft 08/05/2013 8-9 Deep OFF-W	GZ-126 0_5-2ft 08/05/2013 0.5-2 Shallow OFF-W	GZ-126 2-4ft 08/05/2013 2-4 Deep OFF-W	GZ-126T 0-0_5ft 08/06/2013 0-0.5 Shallow OFF-W	GZ-127 0_5-2ft 08/05/2013 0.5-2 Shallow ON	GZ-127 0-0_5ft 08/05/2013 0-0.5 Shallow ON	GZ-127 2-4ft 08/05/2013 2-4 Deep ON	GZ-127 4-5ft 08/05/2013 4-5 Deep ON	GZ-128 2-4ft 08/01/2013 2-4 Deep ON
Total Organic Carbo	NA	NA	-	52800	-	-	-	-	-	64800	19000	35100	-	-
Total Metals														
Antimony	NA	9.3 b	<1.5	<1.2	<1.3	<1.4	<1.2	<1.2	<1.4	<1.5	2.3	<1.1	<1.2	<3.0
Arsenic	8.2 a	70 a	5.3	1.6	2	2.5	**13.6**	<1.2	**24.5**	**24.7**	**94.7**	8	5.9	**54.4**
Barium	NA	48 b	14.2	10	12.4	18.6	22.3	9.7	31.8	27.2	89.4	24.3	41.9	63.1
Beryllium	NA	NA	0.2	0.23	0.27	0.38	0.21	0.22	0.26	0.26	0.34	0.39	0.6	0.49
Cadmium	1.2 a	9.6 a	0.3	<0.25	0.28	0.35	0.35	<0.25	0.58	<0.29	1.2	<0.23	<0.25	**2.15**
Chromium	81 a	370 a	12	11.3	13.4	18.1	12.3	10.4	19.1	17.2	32	14.4	24.8	**84.5**
Lead	47 a	218 a	44.8	<2.5	<2.5	3	**91.6**	<2.5	**140**	**97.4**	**369**	12.4	8.9	**208**
Mercury	0.15 a	0.71 a	**0.184**	<0.021	<0.017	<0.025	**0.253**	<0.019	**0.506**	**1.69**	**0.876**	<0.020	<0.023	**1.46**
Nickel	21 a	52 a	6.1	6.7	7.8	10.2	5.9	6.4	7.6	8.6	9.5	9.4	12.1	15.9
Selenium	NA	1 b	<1.45	<1.25	<1.26	<1.42	<1.17	<1.23	<1.37	<1.47	1.91	<1.14	<1.24	<3.03
Silver	1 a	3.7 a	<0.29	<0.25	<0.25	<0.28	0.39	<0.25	0.66	0.63	**1.94**	0.3	0.28	**1.93**
Thallium	NA	NA	<1.45	<1.25	<1.26	<1.42	<1.17	<1.23	<1.37	<1.47	<1.58	<1.14	<1.24	<3.03
Vanadium	NA	57 b	15.4	15.2	17.6	22.8	15.9	14.3	22.2	24.1	56.6	22.3	34.1	97.5
Zinc	150 a	410 a	52.4	19.8	22.2	29.9	55.2	18.4	102	80	**217**	40.3	46.6	**254**

Wynn Resort Casino
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Sample ID	Marine Sediment Benchmarks		GZ-128 4-6ft	GZ-128T 0-0_5ft	GZ-129 2-4ft	GZ-129T 0-0_5ft	GZ-130 0-0_5ft	GZ-130 2-4ft	GZ-130 4-6ft	GZ-131 0_5-2ft	GZ-131 0-0_5ft	GZ-131 2-4ft	GZ-131 4-5ft	GZ-132 0_5-2ft
Date Sampled			08/01/2013	08/06/2013	08/02/2013	08/06/2013	08/02/2013	08/02/2013	08/02/2013	08/02/2013	08/02/2013	08/02/2013	08/02/2013	08/05/2013
Depth (ft)			4-6	0-0.5	2-4	0-0.5	0-0.5	2-4	4-6	0.5-2	0-0.5	2-4	4-5	0.5-2
Type			Deep	Shallow	Deep	Shallow	Shallow	Deep	Deep	Shallow	Shallow	Deep	Deep	Shallow
Group	ERLs	ERMs	ON	ON	OFF-W	OFF-W	OFF-W	OFF-W	OFF-W	OFF-W	OFF-W	OFF-W	OFF-W	OFF-W
Analyte														
Total Organic Corbo	NA	NA	-	-	59600	-	-	58300	10700	40000	-	-	-	-
Total Metals														
Antimony	NA	9.3 b	<1.9	<3.1	<1.3	<1.6	<1.6	<1.3	<1.4	<1.4	<1.4	<1.3	<1.1	<1.3
Arsenic	8.2 a	70 a	**30.4**	**33.2**	3.7	**11.6**	4.2	3.1	2.4	**23.4**	**13.8**	3.5	4.5	**68.3**
Barium	NA	48 b	60.2	58.5	8.1	15	14.6	6.6	8.8	18.6	19	6.3	7.8	47.9
Beryllium	NA	NA	0.64	0.58	0.16	0.18	0.28	0.15	0.18	0.22	0.15	0.14	0.2	0.34
Cadmium	1.2 a	9.6 a	**1.71**	**1.31**	<0.26	<0.32	<0.32	<0.25	<0.28	<0.27	<0.28	<0.25	<0.23	**2.4**
Chromium	81 a	370 a	63.8	78.2	9.5	16.6	15.2	7.7	10.1	16.2	14.7	7.4	10.2	20.8
Lead	47 a	218 a	**135**	**191**	<2.6	44.4	9.2	<2.5	<2.8	**112**	**65.2**	3.4	4.2	**238**
Mercury	0.15 a	0.71 a	**0.949**	**0.84**	<0.020	<0.026	<0.030	<0.020	<0.024	**0.225**	**0.269**	0.056	<0.023	**0.41**
Nickel	21 a	52 a	20.2	**23.2**	5.5	6.8	8.9	4.8	6.2	6.3	5.5	4.6	7.1	16.6
Selenium	NA	1 b	<1.92	<3.12	<1.28	<1.60	<1.62	<1.27	<1.41	4.43	<1.39	<1.25	<1.13	2.25
Silver	1 a	3.7 a	**1.25**	**2.14**	<0.26	0.42	<0.32	<0.25	<0.28	0.71	0.65	<0.25	0.25	<1.29
Thallium	NA	NA	<1.92	<3.12	<1.28	<1.60	<1.62	<1.27	<1.41	<1.35	<1.39	<1.25	<1.13	<1.29
Vanadium	NA	57 b	52.4	71.1	11.9	19.5	19.2	10	12.6	18.5	16.8	10	19.3	21.3
Zinc	150 a	410 a	**237**	**303**	16.1	67	29.8	13.6	17.2	132	72.7	14.6	20.9	**1310**

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Sample ID	Marine Sediment Benchmarks		GZ-132 0-0_5ft	GZ-133 0_5-2ft	GZ-133 0-0_5ft	GZ-133 2-4_4ft	GZ-134 2-3ft	GZ-134 4-6ft	GZ-134 6-8ft	GZ-134T 0-0_5ft	GZ-135 2-4ft	GZ-135 4-6ft	GZ-135T 0-0_5ft	GZ-136 0_5-2ft
Date Sampled			08/05/2013	08/05/2013	08/05/2013	08/05/2013	08/02/2013	08/02/2013	08/02/2013	08/06/2013	08/02/2013	08/02/2013	08/06/2013	08/05/2013
Depth (ft)			0-0.5	0.5-2	0-0.5	2-4.4	2-3	4-6	6-8	0-0.5	2-4	4-6	0-0.5	0.5-2
Type			Shallow	Shallow	Shallow	Deep	Shallow	Deep	Deep	Shallow	Deep	Deep	Shallow	Shallow
Group			OFF-W	OFF-W	OFF-W	OFF-W	ON	ON	ON	ON	OFF-W	OFF-W	OFF-W	OFF-W
Analyte	ERLs	ERMs												
Total Organic Carbo	NA	NA	-	-	-	-	-	-	-	52600	-	-	-	16300
Total Metals														
Antimony	NA	9.3 b	<1.4	1.8	<1.4	<1.5	<3.6	<3.2	<1.9	<3.0	<1.3	<1.4	<1.5	<1.4
Arsenic	8.2 a	70 a	**21.5**	**52.8**	**30.3**	**25.6**	**35.5**	**53.4**	**31.2**	**30.7**	3.5	5.5	7.4	**27.9**
Barium	NA	48 b	27.3	51.3	38.4	36.2	31.7	64.7	69	59	6.8	12.2	13.3	36.6
Beryllium	NA	NA	0.19	0.27	0.18	0.28	0.44	0.4	0.72	0.61	0.14	0.24	0.18	0.25
Cadmium	1.2 a	9.6 a	<0.28	0.34	<0.28	<0.29	**1.37**	**1.83**	**1.76**	**1.36**	<0.25	<0.29	<0.30	0.89
Chromium	81 a	370 a	18.1	29.6	18.1	19.4	54.5	74.2	66.6	79	7.8	12.9	15.5	28.9
Lead	47 a	218 a	**100**	**218**	**149**	**107**	**132**	**187**	**136**	**191**	<2.5	3	29.3	**127**
Mercury	0.15 a	0.71 a	**0.296**	**1.05**	**0.497**	**0.816**	**0.524**	**1.1**	**1.09**	**1.06**	<0.021	<0.027	0.099	**0.915**
Nickel	21 a	52 a	6.7	10	6	9.5	15.4	11.4	**23.6**	**23.4**	4.7	7.3	6.8	9.8
Selenium	NA	1 b	<1.42	<1.69	<1.38	1.78	<3.57	<3.23	<1.92	<3.05	<1.26	<1.44	<1.51	<1.42
Silver	1 a	3.7 a	0.85	**1.6**	0.9	0.96	**1.11**	**1.81**	**1.36**	**2.19**	<0.25	<0.29	0.39	**1.43**
Thallium	NA	NA	<1.42	<1.69	<1.38	<1.46	<3.57	<3.23	<1.92	<3.05	<1.26	<1.44	<1.51	<1.42
Vanadium	NA	57 b	24.1	46.4	24.6	23.7	83	72.6	52.3	71.7	10.1	16.2	16.9	35
Zinc	150 a	410 a	101	**165**	123	140	**210**	**257**	**276**	**332**	14.7	21.7	57.5	**198**

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Sample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks ERLs	Marine Sediment Benchmarks ERMs	GZ-136 0-0_5ft 08/05/2013 0-0.5 Shallow OFF-W	GZ-136 2-4ft 08/05/2013 2-4 Deep OFF-W	GZ-136 4-6ft 08/05/2013 4-6 Deep OFF-W	GZ-136 8-10ft 08/05/2013 8-10 Deep OFF-W	GZ-137 2-4ft 08/05/2013 2-4 Deep OFF-W	GZ-137 4-5_5ft 08/05/2013 4-5.5 Deep OFF-W	GZ-137T 0-0_5ft 08/06/2013 0-0.5 Shallow OFF-W	GZ-138 0_5-2ft 08/02/2013 0.5-2 Shallow OFF-W	GZ-138 0-0_5ft 08/02/2013 0-0.5 Shallow OFF-W	GZ-138 2-4ft 08/02/2013 2-4 Deep OFF-W	GZ-138 4-6ft 08/02/2013 4-6 Deep OFF-W	GZ-138 6-8ft 08/02/2013 6-8 Deep OFF-W
Total Organic Corbo	NA	NA	-	-	-	-	-	-	54800	-	71000	-	-	-
Total Metals														
Antimony	NA	9.3 b	1.4	<1.3	<1.3	<1.3	1.5	<1.2	<1.8	<2.9	<2.7	<2.0	<2.0	<2.3
Arsenic	8.2 a	70 a	**34.6**	5.1	3.9	4.2	**15.4**	7.2	**17.9**	**28.6**	**30.3**	**31**	**33.8**	**42.5**
Barium	NA	48 b	55	9.8	8.2	10.4	30.5	7.8	37.3	48.4	58.2	59	72.6	90.1
Beryllium	NA	NA	0.33	0.18	0.15	0.19	0.17	0.25	0.39	0.59	0.59	0.6	0.63	0.44
Cadmium	1.2 a	9.6 a	<1.35	<0.27	<0.25	<0.26	0.36	<0.23	0.85	**1.51**	**1.47**	**1.75**	**2.36**	**3.74**
Chromium	81 a	370 a	28.4	10.6	9	10.3	13.8	9.8	48.7	68.2	**82.4**	61.6	75.7	**104**
Lead	47 a	218 a	**180**	3.5	<2.5	<2.5	**131**	7	**133**	**140**	**183**	**146**	**177**	**307**
Mercury	0.15 a	0.71 a	**0.73**	<0.024	<0.025	<0.026	<0.018	<0.022	**0.777**	**0.779**	**0.949**	**1.38**	**1.73**	**2.44**
Nickel	21 a	52 a	11	6.2	5.4	6	6.7	6	15.9	19.4	**25.3**	19.2	20	15.4
Selenium	NA	1 b	1.72	<1.34	<1.26	<1.28	<1.27	<1.16	<1.83	<2.93	<2.69	<2.05	<1.97	3.12
Silver	1 a	3.7 a	**1.76**	<0.27	<0.25	<0.26	0.96	<0.23	**1.22**	**1.28**	**2.29**	**1.38**	**1.53**	**2.08**
Thallium	NA	NA	<1.35	<1.34	<1.26	<1.28	<1.27	<1.16	<1.83	<2.93	<2.69	<2.05	<1.97	<2.28
Vanadium	NA	57 b	29.5	13.9	11.1	13.3	16	14.1	50.5	78	77.3	51.3	57.3	97.5
Zinc	150 a	410 a	**248**	21	17.2	18.4	132	21.2	**216**	**250**	**322**	**276**	**310**	**485**

Wynn Resort Casino
Everett, Massachusetts

Sample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks ERLs	 ERMs	GZ-139 0-0_5ft 08/05/2013 0-0.S Shallow OFF-W	GZ-139 2-4ft 08/05/2013 2-4 Deep OFF-W	GZ-139 6-8ft 08/05/2013 6-8 Deep OFF-W	GZ-140A 0_5-2ft 08/05/2013 0.5-2 Shallow OFF-W	GZ-140A 0-0_5ft 08/05/2013 0-0.5 Shallow OFF-W	GZ-140A 2-3ft 08/05/2013 2-3 Shallow OFF-W	GZ-201 0ft-0_5ft 0-0.5 Shallow OFF-E	GZ-201 0ft-3ft 0-3 Shallow OFF-E	GZ-201 4ft-5ft 4-5 Deep OFF-E	GZ-202 0ft-0_5ft 03/24/2015 0-0.5 Shallow OFF-E	GZ-202 2ft-4ft 3/24/2015 2-4 Deep OFF-E	GZ-203 0ft-0_5ft 03/24/2015 0-0.5 Shallow OFF-E
Total Organic Carbo	NA	NA	-	-	-	5210	-	10900	-	31000	-	-	-	-
Total Metals														
Antimony	NA	9.3 b	<1.0	<1.9	<1.4	<2.6	<1.3	<1.9	0.54	0.5	0.58	<1.23	<4.88	<1.24
Arsenic	8.2 a	70 a	**11**	2	<1.4	**28.1**	**11.3**	**15.9**	**17**	**20.4**	**14**	**29.9**	**15.3**	**25.5**
Barium	NA	48 b	29.9	12.6	10.4	64.9	30.9	38.9	60.7	63.6	47.2	69.4	25.7	55.7
Beryllium	NA	NA	0.32	0.31	0.26	0.73	0.37	0.43	0.6	0.62	0.45	0.68	0.32	0.54
Cadmium	1.2 a	9.6 a	0.96	<0.37	0.28	**3.38**	**1.25**	0.97	1.1	**1.54**	**1.38**	1.02	<0.49	0.73
Chromium	81 a	370 a	32.7	13.8	11.3	**86.6**	39.7	37.1	74.2	**88.6**	63.5	**87**	33.2	67.6
Lead	47 a	218 a	**78.3**	<3.7	<2.7	**198**	**99.7**	**90.6**	**165**	**218**	**178**	**237**	**73.8**	**200**
Mercury	0.1S a	0.71 a	**0.472**	<0.036	<0.026	**1.1**	**0.845**	**0.842**	0.114	**0.434**	**0.498**	**0.307**	**0.258**	**0.728**
Nickel	21 a	52 a	10.5	8.4	7.1	**29.9**	12	11.5	**24**	**30.4**	**22.9**	**26.6**	12.7	20.6
Selenium	NA	1 b	<1.02	<1.87	<1.37	<2.58	1.41	2.92	<4.61	<4.35	<4.41	<4.90	<4.88	<4.98
Silver	1 a	3.7 a	0.93	<0.37	<0.27	**2.83**	**1.07**	0.84	**1.05**	**2.11**	**1.36**	**1.42**	<0.49	**1.09**
Thallium	NA	NA	<1.02	<1.87	<1.37	<2.58	<1.31	<1.93	<0.37	<0.35	<0.35	<0.39	<0.39	<0.40
Vanadium	NA	57 b	34.3	18	14.8	131	36.4	26.3	64.8	103	90	80.7	59.5	64.7
Zinc	1S0 a	410 a	134	27.5	19.4	**377**	**178**	141	**304**	**307**	**216**	**394**	114	**311**

Table 3A
SEDIMENT METALS AND TOTAL ORGANIC CARBON RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks ERLs		Marine Sediment Benchmarks ERMs		GZ-203 0ft-3ft 03/24/2015 0-3 Shallow OFF-E	GZ-203 4ft-6ft 03/24/2015 4-6 Deep OFF-E	GZ-204 0ft-0_5ft 03/24/2015 0.0.5 Shallow OFF-E	GZ-204 2ft-4ft 03/24/2015 2-4 Deep OFF-E	GZ-204 6ft-8ft 03/24/2015 6-8 Deep OFF-E	GZ-205 0ft-0_5ft 3/25/2015 0-0.5 Shallow OFF-E	GZ-205 0ft-3ft 3/25/2015 0-3 Shallow OFF-E	GZ-205 4ft-6ft 3/25/2015 2-6 Deep OFF-E	GZ-205 6ft-8ft 3/25/2015 6-8 Deep OFF-E	GZ-206 0ft-0_5ft 3/25/2015 0-0.5 Shallow ON	GZ-206 0ft-3ft 3/25/2015 0-3 Shallow ON	GZ-206 4ft-6ft 3/25/2015 4-6 Deep ON
Total Organic Carbo	NA		NA		-	67200	45500	53200	43900	76200	51000	45600	58000	-	9610	12600
Total Metals																
Antimony	NA		9.3	b	<1.22	<1.21	<1.21	<4.98	<4.74	<1.17	<1.20	<1.16	<4.02	<1.18	<1.24	<1.16
Arsenic	8.2	a	70	a	**36.5**	**18.8**	**29.5**	**61.4**	**16.5**	**25.8**	**35.7**	**31.2**	5.22	**34.2**	**45.8**	**18.8**
Barium	NA		48	b	S6.6	50.7	56.8	66.4	33.4	49.5	44.5	75	17.5	65.2	60.4	44.1
Beryllium	NA		NA		0.71	0.58	0.56	0.56	0.33	0.47	0.6	0.57	0.3	0.64	0.64	0.48
Cadmium	1.2	a	9.6	a	1.14	0.5	0.75	**1.74**	0.77	0.64	1.06	**1.43**	<0.40	0.9	**1.28**	0.62
Chromium	81	a	370	a	77.9	42.3	69.3	**96.5**	32	59.4	62.2	76.4	15.5	**81.8**	**90.9**	44.7
Lead	47	a	218	a	**190**	**77.2**	**216**	**246**	**93.7**	**186**	**142**	**192**	6.5	**238**	**251**	**93.4**
Mercury	0.15	a	0.71	a	**0.682**	**0.218**	**0.17**	**1.11**	**0.187**	**0.259**	**0.672**	**0.307**	<0.027	**0.935**	**1.04**	**0.168**
Nickel	21	a	52	a	**23.8**	17.7	**21.5**	17	10.3	17.8	17.9	17.4	9.16	**24**	**26.9**	14.7
Selenium	NA		1	b	<4.88	<4.85	<4.85	<4.98	<4.74	<4.69	<4.81	<4.65	<4.02	<4.74	<4.98	<4.63
Silver	1	a	3.7	a	0.91	<0.49	**1.15**	**1.3**	<0.47	0.91	<0.48	0.76	<0.40	**1.35**	**1.58**	<0.46
Thallium	NA		NA		<0.39	<0.39	<0.39	<0.40	<0.38	<0.47	<0.38	<0.47	<0.40	<0.47	<0.40	<0.46
Vanadium	NA		57	b	105	45.5	70.2	109	36.8	58	76.3	76.3	21.8	78.8	108	40.2
Zinc	150	a	410	a	**282**	128	**322**	**280**	129	**277**	**240**	**263**	27.4	**360**	**365**	143

Table 3A
SEDIMENT METALS AND TOTAL ORGANIC CARBON RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Marine Sediment Benchmarks		GZ-207 0ft-0_5ft	GZ-207 0ft-3ft	GZ-207 4ft-6ft	GZ-207 6ft-7_5ft	GZ-208 0ft-0_5ft	GZ-208 4ft-6ft	GZ-209 0ft-0_5ft	GZ-209 2ft-4ft	GZ-209 6ft-8ft	GZ-210 0_5ft-2ft	GZ-210 0ft-0_5ft	GZ-210 2ft-4ft
Date Sampled			3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/30/2015	3/30/2015	3/30/2015
Depth (ft)			0-0.5	0-3	4-6	6-7	0-0.5	4-6	0-0.5	2-4	6-8	0.5-2	0-0.5	2-4
Type			Shallow	Shallow	Deep	Deep	Shallow	Deep	Shallow	Deep	Deep	Shallow	Shallow	Deep
Group	ERLs	ERMs	ON	ON	ON	ON	ON	ON	ON	ON	ON	OFF-E	OFF-E	OFF-E
Analyte														
Total Organic Carbo	NA	NA	19900	-	17600	-	50900	-	-	-	-	-	-	-
Total Metals														
Antimony	NA	9.3 b	<1.24	<1.23	1.22	<1.11	<1.17	<1.24	<1.23	<4.48	<3.95	<4.07	<4.18	<4.27
Arsenic	8.2 a	70 a	**37.6**	**44.9**	**71.6**	6.18	**34.3**	**36.1**	**38.6**	**62.2**	3.54	6.04	**9.98**	4.53
Barium	NA	48 b	63	71.3	98.6	22.8	58.9	91.9	63.4	61.6	15.1	17.4	12.5	17.7
Beryllium	NA	NA	0.62	0.73	0.85	0.4	0.58	1.01	0.64	0.67	0.27	0.3	0.17	0.36
Cadmium	1.2 a	9.6 a	0.8	1.18	**2.38**	<0.44	0.65	**1.39**	0.74	**1.88**	<0.40	<0.41	<0.42	<0.43
Chromium	81 a	370 a	78.7	**95.8**	**114**	20.3	71.1	**89.5**	77.9	**124**	13.6	14.7	11.9	16
Lead	47 a	218 a	**237**	**261**	**296**	6.79	**218**	**187**	**245**	**233**	<3.95	33.1	**62.7**	9.49
Mercury	0.15 a	0.71 a	**0.668**	**0.482**	**1.43**	<0.024	**0.368**	**0.471**	**1.03**	**0.167**	<0.031	0.103	**0.203**	<0.031
Nickel	21 a	52 a	**22.9**	**30.3**	**26.4**	12	20.9	**30.4**	**22.4**	17.8	8.32	8.08	6.28	9.84
Selenium	NA	1 b	<4.95	<4.93	<4.35	<4.42	<4.67	<4.98	<4.90	<4.48	<3.95	<1.63	<1.67	<1.71
Silver	1 a	3.7 a	**1.25**	**1.71**	**1.27**	<0.44	**1.1**	0.58	**1.23**	**1.49**	<0.40	<0.41	<0.42	<0.43
Thallium	NA	NA	<0.40	<0.39	<0.43	<0.44	<0.47	<0.40	<0.39	<0.45	<0.40	<0.33	<0.33	<0.34
Vanadium	NA	57 b	77.5	104	104	27.1	68.7	76.4	74.6	140	19.1	17.7	15.4	21.6
Zinc	150 a	410 a	**354**	**367**	**402**	33.7	**325**	**302**	**356**	**297**	22.9	35.3	**173**	26.9

Table 3A
SEDIMENT METALS AND TOTAL ORGANIC CARBON RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Marine Sediment Benchmarks		GZ-211 0ft-0_5ft	GZ-211 0ft-3ft	GZ-211 4ft-6ft	GZ-212 0_5ft-2ft	GZ-212 0ft-0_5ft	GZ-213 0ft-0_5ft	GZ-213 0ft-3ft	GZ-213 4ft-6ft	GZ-214 0ft-0_5ft	GZ-214 2ft-4ft	GZ-214 4ft-6ft	GZ-214 6ft-8ft
Date Sampled			3/30/201S	3/30/2015	3/30/2015	03/24/2015	03/24/2015	3/25/2015	3/25/2015	3/25/2015	3/30/2015	3/30/2015	3/30/2015	3/30/2015
Depth (ft)			0-0.S	0-3	4-6	0.5-2	0-0.5	0-0.5	0-3	4-6	0-0.5	2-4	4-6	6-8
Type			Shallow	Shallow	Deep	Shallow	Shallow	Shallow	Shallow	Deep	Shallow	Deep	Deep	Deep
Group			OFF-E	OFF-E	OFF-E	OFF-E	OFF-E	ON	ON	ON	ON	ON	ON	ON
Analyte	ERLs	ERMs												
Total Organic Carbo	NA	NA	13900	9900	9230	10300	5470	12300	14500	16800	27300	12600	-	20700
Total Metals														
Antimony	NA	9.3 b	<12.9	<4.29	<13.2	<4.76	<4.95	<1.23	<4.41	<4.74	<3.97	<4.05	<4.02	<3.77
Arsenic	8.2 a	70 a	**22.7**	**10.8**	5.95	**9.78**	**17.2**	**54.1**	**57.9**	5.95	**43.7**	<2.02	<2.01	3.31
Barium	NA	48 b	16.8	18.7	23.8	19.5	20.2	33.4	25.2	18.5	42.7	22	15	14.3
Beryllium	NA	NA	0.17	0.27	0.46	0.29	0.23	0.33	0.28	0.32	0.35	0.41	0.28	0.27
Cadmium	1.2 a	9.6 a	1.1	<0.43	<0.44	<0.48	<0.50	0.72	**2.39**	<0.47	0.42	<0.40	<0.40	<0.38
Chromium	81 a	370 a	14.7	16.1	20.4	17.7	20	36.1	23.2	17.1	38	19.9	14.1	13.2
Lead	47 a	218 a	**87.8**	**56**	5.95	**87.7**	**94.1**	**190**	**282**	5.4	**263**	5.7	<4.02	<3.77
Mercury	0.1S a	0.71 a	**0.217**	**0.481**	<0.032	**0.188**	**0.249**	**0.551**	**0.467**	<0.030	**0.847**	<0.032	<0.030	<0.029
Nickel	21 a	S2 a	7.24	7.78	12.4	8.71	8.39	13	8.91	10.3	19.2	12.1	8.76	8.11
Selenium	NA	1 b	2.23	<1.72	<1.76	<4.76	<4.95	<4.93	6.85	<4.74	<7.94	<8.10	<8.03	<7.55
Silver	1 a	3.7 a	<0.43	<0.43	<0.44	<0.48	<0.50	0.71	<0.44	<0.47	0.65	<0.40	<0.40	<0.38
Thallium	NA	NA	<0.34	<0.34	<0.35	<0.38	<0.40	<0.39	<0.44	<0.47	<0.32	<0.32	<0.32	<0.30
Vanadium	NA	S7 b	19.9	16.4	26	22.4	28.2	55.1	22.4	24.8	56.8	26.2	19.1	18.6
Zinc	1S0 a	410 a	**674**	83.6	31.2	44.3	120	**325**	**913**	35.6	**205**	31.8	22.6	23.8

Table 3A
SEDIMENT METALS AND TOTAL ORGANIC CARBON RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Marine Sediment Benchmarks		GZ-215 0ft-0_5ft	GZ-215 0ft-3ft	GZ-215 4ft-6ft	GZ-216 0ft-0_5ft	GZ-216 2ft-4ft	GZ-216 4ft-6ft	GZ-217 0ft-0_5ft	GZ-217 0ft-3ft	GZ-217 6ft-8ft	GZ-218 0_5ft-2ft	GZ-218 0ft-0_5ft	GZ-218 4ft-6ft
Date Sampled			03/24/2015			03/24/2015	03/24/2015	03/24/2015	03/24/2015	03/24/2015	03/24/2015	3/25/2015	3/25/2015	3/25/2015
Depth (ft)			0-0.5	0-3	4-6	0-0.5	2-4	4-6	0-0.5	0-3	6-8	0.5-2	0-0.5	4-6
Type			Shallow	Shallow	Deep	Shallow	Deep	Deep	Shallow	Shallow	Deep	Shallow	Shallow	Deep
Group			ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Analyte	ERLs	ERMs												
Total Organic Carbo	NA	NA	-	22500	14100	40700	-	35700	-	61300	43000	-	-	16800
Total Metals														
Antimony	NA	9.3 b	<4.13	<4.08	<4.12	<1.09	<1.09	<4.72	1.57	1.54	<4.13	<4.55	<1.13	<4.37
Arsenic	8.2 a	70 a	**45.8**	8.17	2.73	**52.2**	**11.5**	5.37	**164**	**92.1**	5.33	**183**	**58.2**	8.14
Barium	NA	48 b	30.9	21.3	10.7	43.7	28.3	18.9	73.5	47.6	19.4	68.2	44.2	20.2
Beryllium	NA	NA	0.34	0.23	0.19	0.4	0.42	0.35	0.48	0.44	0.32	0.67	0.38	0.35
Cadmium	1.2 a	9.6 a	0.S3	0.92	<0.41	0.66	<0.43	<0.47	<0.48	1.12	<0.41	0.79	<0.45	<0.44
Chromium	81 a	370 a	37.1	14.7	10.5	55.5	22.5	16.9	56.1	41.5	16.2	49.6	48.2	17.2
Lead	47 a	218 a	**234**	42.7	<4.12	**268**	**73.8**	5.18	**791**	**545**	5.15	**738**	**279**	25.8
Mercury	0.1S a	0.71 a	**0.982**	**0.221**	<0.031	**0.467**	**0.188**	<0.030	**0.979**	**0.969**	<0.033	**7.07**	**0.393**	0.074
Nickel	21 a	52 a	15.3	7.87	6.56	18	12.1	9.99	**25**	15.1	9.93	18	16.5	10.1
Selenium	NA	1 b	<8.26	<8.16	<8.23	5.19	<4.35	<4.72	52.8	22.6	<4.13	28.6	<4.50	<4.37
Silver	1 a	3.7 a	0.54	<0.41	<0.41	0.89	<0.43	<0.47	**1.23**	0.64	<0.41	<0.45	0.73	<0.44
Thallium	NA	NA	<0.33	<0.33	<0.33	<0.35	<0.35	<0.38	<0.38	<0.40	<0.33	<0.45	<0.45	<0.44
Vanadium	NA	57 b	53.2	22.6	15.3	65.8	28.9	23.6	61.3	38	23.7	45	61	23.2
Zinc	150 a	410 a	**227**	**406**	28.8	**265**	72.7	27.5	**393**	**515**	28.3	**410**	**270**	55.4

Table 3A
SEDIMENT METALS AND TOTAL ORGANIC CARBON RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks ERLs		Marine Sediment Benchmarks ERMs		GZ-219 0ft-0_5ft 3/2S/201S 0-0.5 Shallow ON	GZ-219 0ft-3ft 3/25/2015 0-3 Shallow ON	GZ-219 4ft-6ft 3/25/2015 4-6 Deep ON	GZ-220 0_5ft-2ft 3/30/2015 0.5-2 Shallow ON	GZ-220 0ft-0_5ft 3/30/2015 0-0.5 Shallow ON	GZ-220 2ft-4ft 3/30/2015 2-4 Deep ON	GZ-221 0ft-0_5ft 3/30/2015 0-0.5 Shallow ON	GZ-221 0ft-3ft 3/30/2015 0-3 Shallow ON	GZ-221 4ft-6ft 3/30/2015 4-6 Deep ON	GZ-222 0_5ft-2ft 3/30/2015 0.5-2 Shallow ON	GZ-222 0ft-0_5ft 3/30/2015 0-0.5 Shallow ON	GZ-222 2ft-4ft 3/30/2015 2-4 Deep ON
Total Organic Carbo	NA		NA		6700	-	-	6580	-	6840	-	-	-	-	6760	32100
Total Metals																
Antimony	NA		9.3	b	<1.08	1.32	<4.67	<3.94	<4.20	<3.45	<4.08	<4.18	<4.00	<3.65	<3.70	<3.66
Arsenic	8.2	a	70	a	**71.7**	**66.3**	3.96	**210**	**45.8**	3.43	**37.9**	**135**	<2.00	**48.4**	**28**	**32.1**
Barium	NA		48	b	36.8	52	12.2	59.3	48.4	21	36	77.6	19.6	37.5	32.7	38.8
Beryllium	NA		NA		0.33	0.47	0.22	0.52	0.4	0.38	0.37	0.54	0.36	0.54	0.29	0.4
Cadmium	1.2	a	9.6	a	<0.43	1	<0.47	**2.76**	0.52	<0.34	0.43	**1.96**	<0.40	0.41	<0.37	0.73
Chromium	81	a	370	a	38.2	40.4	11.8	44.4	49.5	19.3	46.6	**91.4**	18.3	31.5	38.6	36.9
Lead	47	a	218	a	**271**	**506**	<4.67	**582**	**317**	14.2	**197**	**703**	5.66	**175**	**192**	**270**
Mercury	0.15	a	0.71	a	**0.572**	**1.2**	<0.024	**3.46**	**1.05**	0.074	**0.892**	**4.41**	<0.030	**1.31**	**0.779**	**1.95**
Nickel	21	a	S2	a	17.5	13.4	7.45	11.8	15.7	10.9	14.9	13.4	10.5	14.9	12.1	11.5
Selenium	NA		1	b	<4.33	15.2	<4.67	65.4	<8.40	<6.90	<8.16	30.7	<8.00	27.7	<7.41	10
Silver	1	a	3.7	a	0.58	<0.50	<0.47	**1.17**	0.83	<0.34	0.63	0.66	<0.40	<0.36	0.47	<0.37
Thallium	NA		NA		<0.43	<0.40	<0.47	<0.31	<0.34	<0.28	<0.33	<0.33	<0.32	<0.29	<0.30	<0.29
Vanadium	NA		S7	b	S0.2	33.2	18.1	45.2	59.3	25.3	63.4	38.7	24.3	34.9	48.8	27.2
Zinc	1S0	a	410	a	**266**	**481**	21.3	**547**	**266**	38	**214**	**624**	29.8	**169**	**180**	**284**

Table 3A
SEDIMENT METALS AND TOTAL ORGANIC CARBON RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Marine Sediment Benchmarks		GZ-223 0ft-0_5ft	GZ-223 0ft-3ft	GZ-223 2ft-4ft	GZ-224 0_5ft-2ft	GZ-224 0ft-0_5ft	GZ-225 0ft-0_5ft	GZ-225 0ft-3ft	GZ-225 4ft-6ft	GZ-225 6ft-7.2ft	GZ-226 0_5ft-2ft	GZ-226 0ft-0_5ft	GZ-226 2ft-4ft
Date Sampled			3/30/2015	3/30/2015	3/30/2015	3/30/2015	3/30/2015	03/27/2015	03/27/2015	03/27/2015	03/27/2015	3/30/2015	3/30/2015	3/30/2015
Depth (ft)			0-0.5	0-3	2-4	0.5-2	0-0.5	0-0.5	0-3	4-6	6-7.2	0.5-2	0-0.5	2-4
Type			Shallow	Shallow	Deep	Shallow	Shallow	Shallow	Shallow	Deep	Deep	Shallow	Shallow	Deep
Group			ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Analyte	ERLs	ERMs												
Total Organic Carbo	NA	NA	-	-	-	-	-	-	-	-	-	19100	-	10100
Total Metals														
Antimony	NA	9.3 b	<4.03	<3.70	<3.86	<4.20	<4.13	0.51	0.5	<4.57	<0.45	<3.83	<4.08	<3.72
Arsenic	8.2 a	70 a	**35.6**	**137**	**107**	**185**	**70.7**	**41.1**	**27.8**	**51.9**	3.46	**91.8**	**32.2**	<1.86
Barium	NA	48 b	38.5	91.5	135	64	35.5	36.5	32.3	32	57.9	53.5	41.2	22.6
Beryllium	NA	NA	0.32	0.67	0.45	0.64	<0.41	0.22	0.49	0.49	0.76	0.47	0.33	0.38
Cadmium	1.2 a	9.6 a	<0.40	**1.58**	**1.62**	**2.47**	<0.41	<0.44	<0.44	<0.46	<0.45	**3.4**	<0.41	<0.37
Chromium	81 a	370 a	43.2	62.7	**88**	71.2	**85.5**	38.8	26.4	27.3	32.4	57.8	39.2	19.3
Lead	47 a	218 a	**250**	**1120**	**1800**	**919**	**649**	**389**	**83.5**	**123**	9.92	**1210**	**176**	13.1
Mercury	0.1S a	0.71 a	**0.974**	**11.9**	**10.3**	**10.6**	**0.672**	**0.319**	**0.628**	0.136	<0.029	**5.43**	**0.544**	0.049
Nickel	21 a	S2 a	12.9	16.5	12.5	15.3	**84.4**	13.7	15.1	15.7	**23.7**	12.7	14.1	11.6
Selenium	NA	1 b	<8.06	63.6	14.9	66.5	<8.26	2.75	<4.37	<4.57	<4.55	**45.8**	<8.16	<7.43
Silver	1 a	3.7 a	0.49	0.53	0.59	0.68	**4.08**	<0.44	<0.44	<0.46	<0.45	0.7	0.59	<0.37
Thallium	NA	NA	<0.32	<0.30	<0.31	<0.34	<0.33	<0.35	<0.35	<0.37	<0.36	<0.31	<0.33	<0.30
Vanadium	NA	S7 b	49.7	45.5	34.4	41.4	54.2	48.2	32.8	33.7	46.4	32.7	58.2	24.7
Zinc	1S0 a	410 a	**227**	**462**	**480**	**679**	**217**	**202**	92.5	107	52	**1150**	**187**	46.3

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Marine Sediment Benchmarks		LC-101 0ft-0_5ft	LC-101 2ft-4ft	LC-101 6ft-8ft	LC-102 0_5ft-2ft	LC-102 0ft-0_5ft	LC-103 0ft-0_5ft	LC-103 2ft-4ft	LC-103 4ft-6ft	LC-104 0_5ft-2ft	LC-104 0ft-0_5ft	LC-105 0ft-0_5ft	LC-105 2ft-4ft
Date Sampled			03/26/2015	03/26/2015	03/26/2015	03/26/2015	03/26/2015	03/26/2015	03/26/2015	03/26/2015	03/26/2015	03/26/2015	03/26/2015	03/26/2015
Depth (ft)			0-0.5	2-4	6-8	0.5-2	0-0.5	0-0.5	2-4	4-6	0.5-2	0-0.5	0-0.5	2-4
Type			Shallow	Deep	Deep	Shallow	Shallow	Shallow	Deep	Deep	Shallow	Shallow	Shallow	Deep
Group			LC	LC	LC	LC	LC	LC	LC	LC	LC	LC	LC	LC
Analyte	ERLs	ERMs												
Total Organic Carbo	NA	NA	51700	59000	75800	61900	-	65000	64300	62700	75300	89400	-	67100
Total Metals														
Antimony	NA	9.3 b	<1.24	<1.22	<4.35	1.42	<1.17	<1.19	<1.13	<0.95	<1.10	<1.22	<1.14	<1.24
Arsenic	8.2 a	70 a	**16.4**	**11.6**	4.34	**35.5**	**22.7**	**21**	6.3	4.58	**28.3**	**23.1**	**19.5**	**29.8**
Barium	NA	48 b	47.8	34.3	18.3	77.9	63.3	55.9	23.4	22.3	63	61.8	59.1	83.5
Beryllium	NA	NA	0.42	0.41	0.34	0.62	0.59	0.5	0.4	0.37	0.41	0.57	0.57	0.84
Cadmium	1.2 a	9.6 a	0.85	<0.49	<0.43	**4.91**	**1.26**	1.05	<0.45	<0.38	**8.51**	**1.25**	1.18	**1.65**
Chromium	81 a	370 a	55.8	34.9	16.1	**170**	79.2	69.3	19.4	17.8	66	80.3	76.3	80.8
Lead	47 a	218 a	**161**	**63.1**	<4.35	**413**	**770**	**180**	5.44	4.8	**220**	**209**	**194**	**160**
Mercury	0.15 a	0.71 a	**0.181**	0.099	<0.029	**0.449**	0.13	**0.176**	<0.027	<0.030	**0.256**	**0.215**	0.095	**0.336**
Nickel	21 a	52 a	17.9	13.9	10.3	**67.4**	**24.7**	**22.6**	12.1	11.1	16	**25.1**	**23.3**	**26.4**
Selenium	NA	**1** b	<2.49	<4.88	<4.35	<2.36	<2.35	<2.38	<2.26	<3.82	<2.19	<2.44	<2.28	<2.48
Silver	**1** a	3.7 a	0.88	<0.49	<0.43	**3.01**	**1.23**	**1.2**	<0.45	<0.38	0.83	**1.42**	**1.09**	0.51
Thallium	NA	NA	<0.40	<0.39	<0.35	<0.38	<0.38	<0.38	<0.36	<0.31	<0.35	<0.39	<0.37	<0.40
Vanadium	NA	57 b	49.1	38.3	22	484	68.6	67	27.2	23.9	40.4	76	65	65.2
Zinc	150 a	410 a	**235**	119	25.8	**618**	**383**	**290**	31.4	27	**293**	**329**	**346**	**277**

Wynn Resort Casino
Everett, Massachusetts

5ample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks ERLs	Marine Sediment Benchmarks ERMs	LC-105 4ft-6ft 03/26/2015 4-6 Deep LC	LC-106 0_5ft-2ft 03/26/2015 0.5-2 Shallow LC	LC-106 0ft-0_5ft 03/26/2015 0-0.5 Shallow LC	LC-106 4ft-6ft 03/26/2015 4-6 Deep LC	LC-107 0ft-0_5ft 03/26/2015 0-0.5 Shallow LC	LC-107 2ft-4ft 03/26/2015 2-4 Deep LC	LC-108 0_5ft-2ft 03/26/2015 0.5-2 Shallow LC	LC-108 0ft-0_5ft 03/26/2015 0-0.5 Shallow LC	LC-108 4ft-6ft 03/26/2015 4-6 Deep LC	LC-109 0ft-0_5ft 03/26/2015 0-0.5 Shallow LC	LC-109 4ft-6ft 03/26/2015 4-6 Deep LC	LC-110 0ft-0_5ft 03/27/2015 0-0.5 Shallow LC
Total Organic Carbo	NA	NA	61800	81900	-	61000	59900	-	-	-	35900	-	-	7310
Total Metals														
Antimony	NA	9.3 b	<1.07	<0.48	0.73	<0.42	<1.07	<1.10	2.01	<1.08	<1.06	<1.21	<1.03	0.69
Arsenic	8.2 a	70 a	**10.5**	**17.2**	**16.7**	**24.5**	**15.2**	**19.9**	**28.4**	**21.2**	**33.5**	**22**	**33.6**	**16.3**
Barium	NA	48 b	66.9	71.4	69.6	93.5	201	46.5	83.5	58.9	62.1	59.9	97.7	72.6
Beryllium	NA	NA	0.69	0.68	0.67	0.95	0.56	0.37	0.65	0.57	0.7	0.54	0.56	0.58
Cadmium	1.2 a	9.6 a	<0.43	**1.79**	**1.47**	**1.62**	**1.54**	**2.32**	**3.52**	0.99	**4.5**	1	**3.7**	**1.57**
Chromium	81 a	370 a	33.6	**93.8**	**85.7**	**86.5**	75.5	**92.3**	**128**	75.3	40.4	75.5	54.3	**83.6**
Lead	47 a	218 a	10.4	**243**	**216**	**167**	**355**	**258**	**423**	**193**	**103**	**194**	**336**	**218**
Mercury	0.15 a	0.71 a	<0.024	**0.682**	0.146	<0.032	0.147	**0.245**	**0.373**	**0.221**	0.134	**0.346**	**0.455**	**0.827**
Nickel	21 a	52 a	**24.2**	**30.5**	**27.6**	**30.9**	**24.6**	**28.9**	**44.7**	**23.7**	18.5	**25.8**	18.6	**29.8**
Selenium	NA	1 b	<2.14	<4.78	<4.74	1.91	<2.14	<2.20	<2.48	<2.16	<2.12	<2.43	3.63	<4.35
Silver	1 a	3.7 a	<0.43	**1.63**	**1.23**	<0.42	**1.07**	**1.2**	**3.09**	**1.14**	<0.42	**1.16**	0.61	**1.52**
Thallium	NA	NA	<0.34	<0.38	<0.38	<0.33	<0.34	<0.35	<0.40	<0.34	<0.34	<0.39	<0.33	<0.35
Vanadium	NA	57 b	46.1	88.2	77	74.3	66.4	131	198	68.9	40.8	69.1	43.2	82.4
Zinc	150 a	410 a	5S.3	**396**	**386**	**270**	**557**	**354**	**498**	**344**	144	**334**	**309**	**300**

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Marine Sediment Benchmarks				LC-110 2ft-4ft	LC-111 0_5ft-2ft	LC-111 0ft-0_5ft	LC-111 4ft-6ft	LC-112 0ft-0_5ft	LC-112 4ft-6ft
Date Sampled					03/27/2015	03/27/2015	03/27/2015	03/27/2015	03/27/2015	03/27/2015
Depth (ft)					2-4	0.5-2	0-0.5	4-6	0-0.5	4-6
Type					Deep	Shallow	Shallow	Deep	Shallow	Deep
Group	ERLs		ERMs		LC	LC	LC	LC	LC	LC
Analyte										
Total Organic Carbo	NA		NA		-	33400	-	-	3880	-
Total Metals										
Antimony	NA		9.3	b	<4.07	0.85	0.59	<0.47	<0.48	<4.46
Arsenic	8.2	a	70	a	**20**	**34.1**	**13.5**	3.07	**15.1**	5.13
Barium	NA		48	b	36.7	106	66.1	30.4	64.8	12.2
Beryllium	NA		NA		0.36	0.87	0.53	0.53	0.55	0.3
Cadmium	1.2	a	9.6	a	0.47	**2.52**	1.18	<0.47	1.19	<0.45
Chromium	81	a	370	a	41.1	**83.9**	75.9	25	73.4	13.3
Lead	47	a	218	a	**94.9**	**211**	**186**	7.27	**183**	4.97
Mercury	0.15	a	0.71	a	**0.375**	**1.08**	**0.846**	<0.030	**0.76**	<0.028
Nickel	21	a	52	a	10.7	**29.8**	**29.6**	15.8	**25.1**	8.56
Selenium	NA		1	b	<4.07	<4.81	<4.65	<4.67	<4.76	<4.46
Silver	1	a	3.7	a	<0.41	<0.48	**1.37**	<0.47	**1.16**	<0.45
Thallium	NA		NA		<0.33	<0.38	<0.37	<0.37	<0.38	<0.36
Vanadium	NA		57	b	24.4	66.5	93.3	34.5	75.2	20.2
Zinc	1S0	a	410	a	**165**	**279**	**274**	36.3	**255**	19.6

Wynn Resort Casino
Everett, Massachusetts

Notes:

1. Results are presented in mg/kg unless otherwise noted.
2. "<" indicates that an analyte was tested for but not detected above the Method Reporting Limit (MRL). "-" indicates that an analyte was not tested for. "NA" indicates that a benchmark value is not available. "ND" indicates that an analyte was not detected.
3. Samples are designated as "Shallow" if any portion of the sample depth occurs within the uppermost 2 feet of sediment. All other samples are designated as "Deep."
4. Group designations are as follows: ON = On-Site, OFF-W = Off-Site West, OFF-E = Off-Site East, and LC = Local Conditions.
5. Marine sediment benchmarks are from the following sources:
    a. Effects Range - Low (ERL) and Effects Range - Median (ERM) Marine Sediment screening values from Long, et al., 1995.
    b. ERL and ERM equivalent Marine Sediment benchmark values from http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf
6. Bolded values exceed the conservative ERL screening value.
7. Shaded values exceed the ERM benchmark value.
8. The LC-# series of samples are Local Conditions samples

Table 3B
SEDIMENT POLYCHLORINATED BIPHENYL RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks		GZ-102 6-8ft 08/01/2013 6-8 Deep ON	GZ-104 2-4ft 08/06/2013 2-4 Deep ON	GZ-104T 0-0_5ft 08/06/2013 0-0.5 Shallow ON	GZ-105 4-6ft 08/01/2013 4-6 Deep ON	GZ-108 2-4ft 08/01/2013 2-4 Deep ON	GZ-108T 0-0_5ft 08/06/2013 0-0.5 Shallow ON	GZ-109 0_5-2_5ft 08/02/2013 0.5-2.5 Shallow ON
	ERLs	ERMs							
Polychlorinated Biphenyls (PCBs)									
Aroclor 1016	NA	NA	<0.0675	<0.0710	<0.110	<0.0547	<0.0860	<0.106	<0.0389
Aroclor 1221	NA	NA	<0.0675	<0.0710	<0.110	<0.0547	<0.0860	<0.106	<0.0389
Aroclor 1232	NA	NA	<0.0675	<0.0710	<0.110	<0.0547	<0.0860	<0.106	<0.0389
Aroclor 1242	NA	NA	<0.0675	<0.0710	<0.110	<0.0547	<0.0860	<0.106	<0.0389
Aroclor 1248	NA	NA	2.45	2.51	1.14	2.08	2.45	0.399	<0.0389
Aroclor 1254	NA	NA	1.11	2.81	1.64	2.63	3.06	0.594	<0.0389
Aroclor 1260	NA	NA	0.685	1.24	0.498	1.77	1.26	0.32	<0.0389
Aroclor 1262	NA	NA	<0.0675	<0.0710	<0.110	<0.0547	<0.0860	<0.106	<0.0389
Aroclor 1268	NA	NA	<0.0675	<0.0710	<0.110	<0.0547	<0.0860	<0.106	<0.0389
Total PCBs	0.023 a	0.18 a	**4.245**	**6.56**	**3.278**	**6.48**	**6.77**	**1.313**	<0.0389

Wynn Resort Casino
Everett, Massachusetts

Sample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks		GZ-111 7-8ft 08/01/2013 7-8 Deep ON	GZ-113 2-4ft 08/01/2013 2-4 Deep ON	GZ-113T 0-0_5ft 08/06/2013 0-0.5 Shallow ON	GZ-114 2-5ft 08/01/2013 2-5 Deep ON	GZ-114T 0-0_5ft 08/06/2013 0-0.5 Shallow ON	GZ-116 0_5-2ft 08/02/2013 0.5-2 Shallow ON	GZ-116 2-4ft 08/02/2013 2-4 Deep ON
	ERLs	ERMs							
Polychlorinated Biphenyls (PCBs)									
Aroclor 1016	NA	NA	<0.107	<0.0453	<0.0466	<5.48	<0.0889	<0.0356	<0.0355
Aroclor 1221	NA	NA	<0.107	<0.0453	<0.0466	<5.48	<0.0889	<0.0356	<0.0355
Aroclor 1232	NA	NA	<0.107	<0.0453	<0.0466	<5.48	<0.0889	<0.0356	<0.0355
Aroclor 1242	NA	NA	<0.107	<0.0453	<0.0466	<5.48	<0.0889	<0.0356	<0.0355
Aroclor 1248	NA	NA	<0.107	<0.0453	0.648	59.7	0.266	<0.0356	<0.0355
Aroclor 1254	NA	NA	<0.107	1.38	0.914	<5.48	0.606	2.94	<0.0355
Aroclor 1260	NA	NA	<0.107	1.42	0.358	<5.48	0.462	0.995	<0.0355
Aroclor 1262	NA	NA	<0.107	<0.0453	<0.0466	<5.48	<0.0889	<0.0356	<0.0355
Aroclor 1268	NA	NA	<0.107	<0.0453	<0.0466	<5.48	<0.0889	<0.0356	<0.0355
Total PCBs	0.023 a	0.18 a	<0.107	**2.8**	**1.92**	**59.7**	**1.334**	**3.935**	<0.0355

Table 3B
SEDIMENT POLYCHLORINATED BIPHENYL RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks		GZ-116 6-8ft 08/02/2013 6-8 Deep ON	GZ-116T 0-0_5ft 08/06/2013 0-0.5 Shallow ON	GZ-119 2-4ft 08/01/2013 2-4 Deep ON	GZ-119T 0-0_5ft 08/01/2013 0-0.5 Shallow ON	GZ-122 0_5-2ft 08/02/2013 0.5-2 Shallow OFF-W	GZ-122 2-4ft 08/02/2013 2-4 Deep OFF-W	GZ-122T 0-0_5ft 08/06/2013 0-0.5 Shallow OFF-W
	ERLs	ERMs							
Polychlorinated Biphenyls (PCBs)									
Aroclor 1016	NA	NA	<0.0397	<0.0459	<0.129	<0.0849	<0.0395	<0.0378	<0.0362
Aroclor 1221	NA	NA	<0.0397	<0.0459	<0.129	<0.0849	<0.0395	<0.0378	<0.0362
Aroclor 1232	NA	NA	<0.0397	<0.0459	<0.129	<0.0849	<0.0395	<0.0378	<0.0362
Aroclor 1242	NA	NA	<0.0397	<0.0459	<0.129	<0.0849	<0.0395	<0.0378	<0.0362
Aroclor 1248	NA	NA	<0.0397	0.17	2.07	1.53	<0.0395	<0.0378	<0.0362
Aroclor 1254	NA	NA	<0.0397	0.286	3.88	1.29	<0.0395	<0.0378	0.0928
Aroclor 1260	NA	NA	<0.0397	0.211	<0.129	0.569	<0.0395	<0.0378	0.0596
Aroclor 1262	NA	NA	<0.0397	<0.0459	<0.129	<0.0849	<0.0395	<0.0378	<0.0362
Aroclor 1268	NA	NA	<0.0397	<0.0459	<0.129	<0.0849	<0.0395	<0.0378	<0.0362
Total PCBs	0.023 a	0.18 a	<0.0397	**0.667**	**5.95**	**3.389**	<0.0395	<0.0378	**0.1524**

Table 3B
SEDIMENT POLYCHLORINATED BIPHENYL RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks		GZ-126 0_5-2ft 08/05/2013 0.5-2 Shallow OFF-W	GZ-126 2-4ft 08/05/2013 2-4 Deep OFF-W	GZ-126T 0-0_5ft 08/06/2013 0-0.5 Shallow OFF-W	GZ-134 2-3ft 08/02/2013 2-3 Shallow ON	GZ-134 6-8ft 08/02/2013 6-8 Deep ON	GZ-134T 0-0_5ft 08/06/2013 0-0.5 Shallow ON	GZ-136 0_5-2ft 08/05/2013 0.5-2 Shallow OFF-W
	ERLs	ERMs							
Polychlorinated Biphenyls (PCBs)									
Aroclor 1016	NA	NA	<0.0310	<0.0340	<0.0394	<9.35	<0.0487	<0.0808	<0.0377
Aroclor 1221	NA	NA	<0.0310	<0.0340	<0.0394	<9.35	<0.0487	<0.0808	<0.0377
Aroclor 1232	NA	NA	<0.0310	<0.0340	<0.0394	<9.35	<0.0487	<0.0808	<0.0377
Aroclor 1242	NA	NA	<0.0310	<0.0340	<0.0394	<9.35	<0.0487	<0.0808	<0.0377
Aroclor 1248	NA	NA	<0.0310	<0.0340	<0.0394	113	0.29	0.991	<0.0377
Aroclor 1254	NA	NA	<0.0310	<0.0340	0.071	<9.35	0.499	1.46	1.44
Aroclor 1260	NA	NA	<0.0310	<0.0340	<0.0394	<9.35	<0.0487	0.939	<0.0377
Aroclor 1262	NA	NA	<0.0310	<0.0340	<0.0394	<9.35	0.187	<0.0808	<0.0377
Aroclor 1268	NA	NA	<0.0310	<0.0340	<0.0394	<9.35	<0.0487	<0.0808	<0.0377
Total PCBs	0.023 a	0.18 a	<0.0310	<0.0340	**0.071**	**113**	**0.976**	**3.39**	**1.44**

Wynn Resort Casino
Everett, Massachusetts

Sample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks		GZ-137 2-4ft 08/05/2013 2-4 Deep OFF-W	GZ-137T 0-0_5ft 08/06/2013 0-0.5 Shallow OFF-W	GZ-140A 2-3ft 08/05/2013 2-3 Shallow OFF-W	GZ-201 0ft-0_5ft 0-0.5 Shallow OFF-E	GZ-201 0ft-3ft 0-3 Shallow OFF-E	GZ-202 0ft-0_5ft 03/24/2015 0-0.5 Shallow OFF-E	GZ-203 0ft-0_5ft 03/24/2015 0-0.5 Shallow OFF-E
	ERLs	ERMs							
Polychlorinated Biphenyls (PCBs)									
Aroclor 1016	NA	NA	<0.0323	<0.259	<0.0486	<0.0671	<0.0094	<0.0089	<0.0082
Aroclor 1221	NA	NA	<0.0323	<0.0518	<0.0486	<0.0671	<0.0094	<0.0089	<0.0082
Aroclor 1232	NA	NA	<0.0323	<0.0518	<0.0486	<0.0671	<0.0094	<0.0089	<0.0082
Aroclor 1242	NA	NA	<0.0323	<0.0518	<0.0486	<0.0671	<0.0094	<0.0089	<0.0082
Aroclor 1248	NA	NA	0.0796	0.411	<0.0486	0.326	1.17	0.554	0.496
Aroclor 1254	NA	NA	0.0826	0.713	<0.0486	0.582	0.913	0.737	0.667
Aroclor 1260	NA	NA	<0.0323	0.367	<0.0486	0.285	0.264	0.339	0.274
Aroclor 1262	NA	NA	0.0565	<0.0518	<0.0486	<0.0671	<0.0094	<0.0089	<0.0082
Aroclor 1268	NA	NA	<0.0323	<0.0518	<0.0486	<0.0671	<0.0094	<0.0089	<0.0082
Total PCBs	0.023 a	0.18 a	**0.2187**	**1.491**	<0.0486	**1.193**	**2.347**	**1.63**	**1.437**

Wynn Resort Casino
Everett, Massachusetts

Sample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks		GZ-203 0ft-3ft 03/24/2015 0-3 Shallow OFF-E	GZ-204 0ft-0_5ft 03/24/2015 0.0.5 Shallow OFF-E	GZ-204 2ft-4ft 03/24/2015 2-4 Deep OFF-E	GZ-205 0ft-0_5ft 3/25/2015 0-0.5 Shallow OFF-E	GZ-205 0ft-3ft 3/25/2015 0-3 Shallow OFF-E	GZ-206 0ft-0_5ft 3/25/2015 0-0.5 Shallow ON	GZ-206 0ft-3ft 3/25/2015 0-3 Shallow ON
	ERLs	ERMs							
Polychlorinated Biphenyls (PCBs)									
Aroclor 1016	NA	NA	<0.402	<0.0082	<0.167	<0.0092	<2.05	<0.0123	<0.440
Aroclor 1221	NA	NA	<0.402	<0.0082	<0.167	<0.0092	<2.05	<0.0123	<0.440
Aroclor 1232	NA	NA	<0.402	<0.0082	<0.167	<0.0092	<2.05	<0.0123	<0.440
Aroclor 1242	NA	NA	<0.402	<0.0082	<0.167	<0.0092	<2.05	<0.0123	<0.440
Aroclor 1248	NA	NA	5.1	0.577	1.77	0.482	21.5	0.75	5.43
Aroclor 1254	NA	NA	2.83	0.637	2.07	0.662	<2.05	1.1	3.09
Aroclor 1260	NA	NA	0.699	0.243	0.741	0.249	<2.05	0.426	0.667
Aroclor 1262	NA	NA	<0.402	<0.0082	<0.167	<0.0092	<2.05	<0.0123	<0.440
Aroclor 1268	NA	NA	<0.402	<0.0082	<0.167	<0.0092	<2.05	<0.0123	<0.440
Total PCBs	0.023 a	0.18 a	**8.629**	**1.457**	**4.581**	**1.393**	**21.5**	**2.276**	**9.187**

Wynn Resort Casino
Everett, Massachusetts

Sample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks		GZ-206 4ft-6ft 3/25/2015 4-6 Deep ON	GZ-207 0ft-0_5ft 3/25/2015 0-0.5 Shallow ON	GZ-207 0ft-3ft 3/25/2015 0-3 Shallow ON	GZ-208 0ft-0_5ft 3/25/2015 0-0.5 Shallow ON	GZ-209 0ft-0_5ft 3/25/2015 0-0.5 Shallow ON	GZ-209 2ft-4ft 3/25/2015 2-4 Deep ON	GZ-210 0ft-0_5ft 3/30/2015 0-0.5 Shallow OFF-E
	ERLs	ERMs							
Polychlorinated Biphenyls (PCBs)									
Aroclor 1016	NA	NA	<0.0076	<0.0087	<0.557	<0.0091	<0.0096	<2.31	<0.0082
Aroclor 1221	NA	NA	<0.0076	<0.0087	<0.557	<0.0091	<0.0096	<2.31	<0.0082
Aroclor 1232	NA	NA	<0.0076	<0.0087	<0.557	<0.0091	<0.0096	<2.31	<0.0082
Aroclor 1242	NA	NA	<0.0076	<0.0087	<0.557	<0.0091	<0.0096	<2.31	<0.0082
Aroclor 1248	NA	NA	0.312	0.489	6.42	0.175	0.231	20.3	0.0366
Aroclor 1254	NA	NA	0.305	0.692	2.63	0.452	0.473	<2.31	0.056
Aroclor 1260	NA	NA	0.0897	0.261	<0.557	0.197	0.232	<2.31	0.0282
Aroclor 1262	NA	NA	<0.0076	<0.0087	<0.557	<0.0091	<0.0096	<2.31	<0.0082
Aroclor 1268	NA	NA	<0.0076	<0.0087	<0.557	<0.0091	<0.0096	<2.31	<0.0082
Total PCBs	0.023 a	0.18 a	**0.7067**	**1.442**	**9.05**	**0.824**	**0.936**	**20.3**	**0.1208**

Table 3B
SEDIMENT POLYCHLORINATED BIPHENYL RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks		GZ-211 0ft-0_5ft 3/30/2015 0-0.5 Shallow OFF-E	GZ-211 0ft-3ft 3/30/2015 0-3 Shallow OFF-E	GZ-212 0ft-0_5ft 03/24/2015 0-0.5 Shallow OFF-E	GZ-213 0ft-0_5ft 3/25/2015 0-0.5 Shallow ON	GZ-213 0ft-3ft 3/25/2015 0-3 Shallow ON	GZ-214 0ft-0_5ft 3/30/2015 0-0.5 Shallow ON	GZ-214 2ft-4ft 3/30/2015 2-4 Deep ON
	ERLs	ERMs							
Polychlorinated Biphenyls (PCBs)								-	-
Aroclor 1016	NA	NA	<0.0077	<0.0083	<0.0076	<0.0075	<0.0076	<0.0074	<0.0083
Aroclor 1221	NA	NA	<0.0077	<0.0083	<0.0076	<0.0075	<0.0076	<0.0074	<0.0083
Aroclor 1232	NA	NA	<0.0077	<0.0083	<0.0076	<0.0075	<0.0076	<0.0074	<0.0083
Aroclor 1242	NA	NA	<0.0077	<0.0083	<0.0076	<0.0075	<0.0076	<0.0074	<0.0083
Aroclor 1248	NA	NA	0.0356	<0.0083	0.0576	0.479	0.0307	0.0924	<0.0083
Aroclor 1254	NA	NA	0.0543	<0.0083	0.0856	0.594	0.0247	0.247	<0.0083
Aroclor 1260	NA	NA	0.0275	<0.0083	0.0356	0.138	<0.0076	0.0962	<0.0083
Aroclor 1262	NA	NA	<0.0077	<0.0083	<0.0076	<0.0075	<0.0076	<0.0074	<0.0083
Aroclor 1268	NA	NA	<0.0077	<0.0083	<0.0076	<0.0075	<0.0076	<0.0074	<0.0083
Total PCBs	0.023 a	0.18 a	**0.1174**	<0.0083	**0.1788**	**1.211**	**0.0554**	**0.4356**	<0.0083

Table 3B
SEDIMENT POLYCHLORINATED BIPHENYL RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks		GZ-214 4ft-6ft 4-6 Deep ON	GZ-215 0ft-0_5ft 0-0.5 Shallow ON	GZ-215 0ft-3ft 0-3 Shallow ON	GZ-216 0ft-0_5ft 03/24/2015 0-0.5 Shallow ON	GZ-216 2ft-4ft 03/24/2015 2-4 Deep ON	GZ-217 0ft-0_5ft 03/24/2015 0-0.5 Shallow ON	GZ-217 0ft-3ft 03/24/2015 0-3 Shallow ON
	ERLs	ERMs							
Polychlorinated Biphenyls (PCBs)			-	-	-				
Aroclor 1016	NA	NA	<0.0077	<0.0081	<0.0083	<0.0079	<0.0079	<0.0080	<0.0080
Aroclor 1221	NA	NA	<0.0077	<0.0081	<0.0083	<0.0079	<0.0079	<0.0080	<0.0080
Aroclor 1232	NA	NA	<0.0077	<0.0081	<0.0083	<0.0079	<0.0079	<0.0080	<0.0080
Aroclor 1242	NA	NA	<0.0077	<0.0081	<0.0083	<0.0079	<0.0079	<0.0080	<0.0080
Aroclor 1248	NA	NA	<0.0077	0.122	<0.0083	0.256	<0.0079	0.0718	0.0418
Aroclor 1254	NA	NA	<0.0077	0.435	<0.0083	0.343	0.0087	0.0971	0.0272
Aroclor 1260	NA	NA	<0.0077	0.167	<0.0083	0.18	<0.0079	0.0535	0.0324
Aroclor 1262	NA	NA	<0.0077	<0.0081	<0.0083	<0.0079	<0.0079	<0.0080	<0.0080
Aroclor 1268	NA	NA	<0.0077	<0.0081	<0.0083	<0.0079	<0.0079	<0.0080	<0.0080
Total PCBs	0.023 a	0.18 a	<0.0077	**0.724**	<0.0083	**0.779**	0.0087	**0.2224**	**0.1014**

Wynn Resort Casino
Everett, Massachusetts

Sample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks		GZ-218 0_5ft-2ft 3/25/2015 0.5-2 Shallow ON	GZ-218 0ft-0_5ft 3/25/2015 0-0.5 Shallow ON	GZ-219 0ft-0_5ft 3/25/2015 0-0.5 Shallow ON	GZ-219 0ft-3ft 3/25/2015 0-3 Shallow ON	GZ-220 0_5ft-2ft 3/30/2015 0.5-2 Shallow ON	GZ-220 0ft-0_5ft 3/30/2015 0-0.5 Shallow ON	GZ-221 0ft-0_5ft 3/30/2015 0-0.5 Shallow ON
	ERLs	ERMs							
Polychlorinated Biphenyls (PCBs)									
Aroclor 1016	NA	NA	<0.0078	<0.0080	<0.0076	<0.0081	<0.0076	<0.0082	<0.0076
Aroclor 1221	NA	NA	<0.0078	<0.0080	<0.0076	<0.0081	<0.0076	<0.0082	<0.0076
Aroclor 1232	NA	NA	<0.0078	<0.0080	<0.0076	<0.0081	<0.0076	<0.0082	<0.0076
Aroclor 1242	NA	NA	<0.0078	<0.0080	<0.0076	<0.0081	<0.0076	<0.0082	<0.0076
Aroclor 1248	NA	NA	<0.0078	0.136	0.112	<0.0081	<0.0076	0.115	0.608
Aroclor 1254	NA	NA	<0.0078	0.424	0.287	<0.0081	<0.0076	0.348	0.823
Aroclor 1260	NA	NA	<0.0078	0.14	0.0935	<0.0081	<0.0076	0.145	0.271
Aroclor 1262	NA	NA	<0.0078	<0.0080	<0.0076	<0.0081	0.0092	<0.0082	<0.0076
Aroclor 1268	NA	NA	<0.0078	<0.0080	<0.0076	<0.0081	<0.0076	<0.0082	<0.0076
Total PCBs	0.023 a	0.18 a	<0.0078	**0.7**	**0.4925**	<0.0081	0.0092	**0.608**	**1.702**

Table 3B
SEDIMENT POLYCHLORINATED BIPHENYL RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks		GZ-221 0ft-3ft 3/30/2015 0-3 Shallow ON	GZ-222 0ft-0_5ft 3/30/2015 0-0.5 Shallow ON	GZ-223 0ft-0_5ft 3/30/2015 0-0.5 Shallow ON	GZ-223 0ft-3ft 3/30/2015 0-3 Shallow ON	GZ-224 0_5ft-2ft 3/30/2015 0.5-2 Shallow ON	GZ-224 0ft-0_5ft 3/30/2015 0-0.5 Shallow ON	GZ-225 0ft-0_5ft 03/27/2015 0-0.5 Shallow ON
	ERLs	ERMs							
Polychlorinated Biphenyls (PCBs)							-	-	
Aroclor 1016	NA	NA	<0.0081	<0.0073	<0.0079	<0.0080	<0.0082	<0.0077	<0.0083
Aroclor 1221	NA	NA	<0.0081	<0.0073	<0.0079	<0.0080	<0.0082	<0.0077	<0.0083
Aroclor 1232	NA	NA	<0.0081	<0.0073	<0.0079	<0.0080	<0.0082	<0.0077	<0.0083
Aroclor 1242	NA	NA	<0.0081	<0.0073	<0.0079	<0.0080	<0.0082	<0.0077	<0.0083
Aroclor 1248	NA	NA	0.0245	0.147	0.12	<0.0080	0.0211	0.0423	0.119
Aroclor 1254	NA	NA	0.0488	0.485	0.314	<0.0080	0.0174	0.11	0.284
Aroclor 1260	NA	NA	0.0196	0.144	0.1	<0.0080	<0.0082	0.0564	0.108
Aroclor 1262	NA	NA	<0.0081	<0.0073	<0.0079	<0.0080	<0.0082	<0.0077	<0.0083
Aroclor 1268	NA	NA	<0.0081	<0.0073	<0.0079	<0.0080	<0.0082	<0.0077	<0.0083
Total PCBs	0.023 a	0.18 a	**0.0929**	**0.776**	**0.534**	<0.0080	**0.0385**	**0.2087**	**0.511**

Wynn Resort Casino
Everett, Massachusetts

Sample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks		GZ-225 0ft-3ft 03/27/2015 0-3 Shallow ON	GZ-226 0ft-0_5ft 3/30/2015 0-0.5 Shallow ON	LC-101 0ft-0_5ft 03/26/2015 0-0.5 Shallow LC	LC-102 0_5ft-2ft 03/26/2015 0.5-2 Shallow LC	LC-102 0ft-0_5ft 03/26/2015 0-0.5 Shallow LC	LC-103 0ft-0_5ft 03/26/2015 0-0.5 Shallow LC	LC-104 0ft-0_5ft 03/26/2015 0-0.5 Shallow LC
	ERLs	ERMs							
Polychlorinated Biphenyls (PCBs)									
Aroclor 1016	NA	NA	<0.0081	<0.0078	<0.0079	<0.469	<0.0837	<0.0089	<0.0104
Aroclor 1221	NA	NA	<0.0081	<0.0078	<0.0079	<0.469	<0.0837	<0.0089	<0.0104
Aroclor 1232	NA	NA	<0.0081	<0.0078	<0.0079	<0.469	<0.0837	<0.0089	<0.0104
Aroclor 1242	NA	NA	<0.0081	<0.0078	<0.0079	<0.469	<0.0837	<0.0089	<0.0104
Aroclor 1248	NA	NA	0.0388	0.454	0.217	6.83	0.461	0.281	0.391
Aroclor 1254	NA	NA	0.0495	0.593	0.395	8.39	0.869	0.519	0.701
Aroclor 1260	NA	NA	0.016	0.312	0.191	<0.469	0.428	0.232	0.319
Aroclor 1262	NA	NA	<0.0081	<0.0078	<0.0079	<0.469	<0.0837	<0.0089	<0.0104
Aroclor 1268	NA	NA	<0.0081	<0.0078	<0.0079	<0.469	<0.0837	<0.0089	<0.0104
Total PCBs	0.023 a	0.18 a	**0.1043**	**1.359**	**0.803**	**15.22**	**1.758**	**1.032**	**1.411**

Wynn Resort Casino
Everett, Massachusetts

Sample ID / Date Sampled / Depth (ft) / Type / Group / Analyte	Marine Sediment Benchmarks ERLs	Marine Sediment Benchmarks ERMs	LC-105 0ft-0_5ft 03/26/2015 0-0.5 Shallow LC	LC-105 4ft-6ft 03/26/2015 4-6 Deep LC	LC-106 0_5ft-2ft 03/26/2015 0.5-2 Shallow LC	LC-106 0ft-0_5ft 03/26/2015 0-0.5 Shallow LC	LC-107 0ft-0_5ft 03/26/2015 0-0.5 Shallow LC	LC-107 2ft-4ft 03/26/2015 2-4 Deep LC	LC-108 0ft-0_5ft 03/26/2015 0-0.5 Shallow LC
Polychlorinated Biphenyls (PCBs)									
Aroclor 1016	NA	NA	<0.0090	<0.0079	<0.163	<0.0279	<0.0295	<0.399	<0.0096
Aroclor 1221	NA	NA	<0.0090	<0.0079	<0.163	<0.0279	<0.0295	<0.399	<0.0096
Aroclor 1232	NA	NA	<0.0090	<0.0079	<0.163	<0.0279	<0.0295	<0.399	<0.0096
Aroclor 1242	NA	NA	<0.0090	<0.0079	<0.163	<0.0279	<0.0295	<0.399	<0.0096
Aroclor 1248	NA	NA	0.179	<0.0079	1.29	0.442	0.158	4.83	0.275
Aroclor 1254	NA	NA	0.511	0.0086	2.07	0.755	0.258	4.52	0.411
Aroclor 1260	NA	NA	0.243	<0.0079	0.85	0.392	0.19	<0.399	0.187
Aroclor 1262	NA	NA	<0.0090	<0.0079	<0.163	<0.0279	<0.0295	<0.399	<0.0096
Aroclor 1268	NA	NA	<0.0090	<0.0079	<0.163	<0.0279	<0.0295	<0.399	<0.0096
Total PCBs	0.023 a	0.18 a	**0.933**	0.0086	**4.21**	**1.589**	**0.606**	**9.35**	**0.873**

Wynn Resort Casino
Everett, Massachusetts

Sample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks		LC-108 4ft-6ft 03/26/2015 4-6 Deep LC	LC-109 0ft-0_5ft 03/26/2015 0-0.5 Shallow LC	LC-110 0ft-0_5ft 03/27/2015 0-0.5 Shallow LC	LC-111 0ft-0_5ft 03/27/2015 0-0.5 Shallow LC	LC-112 0ft-0_5ft 03/27/2015 0-0.5 Shallow LC	LC-112 4ft-6ft 03/27/2015 4-6 Deep LC
	ERLs	ERMs						
Polychlorinated Biphenyls (PCBs)								
Aroclor 1016	NA	NA	<0.0361	<0.0385	<0.0082	<0.0085	<0.0095	<0.0080
Aroclor 1221	NA	NA	<0.0361	<0.0385	<0.0082	<0.0085	<0.0095	<0.0080
Aroclor 1232	NA	NA	<0.0361	<0.0385	<0.0082	<0.0085	<0.0095	<0.0080
Aroclor 1242	NA	NA	<0.0361	<0.0385	<0.0082	<0.0085	<0.0095	<0.0080
Aroclor 1248	NA	NA	0.0672	0.342	0.334	0.54	0.3	<0.0080
Aroclor 1254	NA	NA	0.234	0.597	0.673	0.813	0.48	<0.0080
Aroclor 1260	NA	NA	0.158	0.299	0.316	0.381	0.265	<0.0080
Aroclor 1262	NA	NA	<0.0361	<0.0385	<0.0082	<0.0085	<0.0095	<0.0080
Aroclor 1268	NA	NA	<0.0361	<0.0385	<0.0082	<0.0085	<0.0095	<0.0080
Total PCBs	0.023 a	0.18 a	**0.4592**	**1.238**	**1.323**	**1.734**	**1.045**	<0.0080

Notes:

1. Results are presented in mg/kg unless otherwise noted.
2. "<" indicates that an analyte was tested for but not detected above the Method Reporting Limit (MRL). "-" indicates that an analyte was not tested for. "NA" indicates that a benchmark value is not available. "ND" indicates that an analyte was not detected.
3. Samples are designated as "Shallow" if any portion of the sample depth occurs within the uppermost 2 feet of sediment. All other samples are designated as "Deep."
4. Group designations are as follows: ON = On-Site, OFF-W = Off-Site West, OFF-E = Off-Site East, and LC = Local Conditions.
5. Marine sediment benchmarks are from the following sources:
    a. Effects Range - Low (ERL) and Effects Range - Median (ERM) Marine Sediment screening values from Long, et al., 1995.
6. Bolded values exceed the conservative ERL screening value.
7. Shaded values exceed the ERM benchmark value.
8. The LC-# series of samples are Local Conditions samples

Table 3C
SEDIMENT SEMI-VOLATILE ORAGNIC COMPOUNDS RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Marine Sediment Benchmarks		GZ-102 6-8ft	GZ-104 2-4ft	GZ-104T 0-0_5ft	GZ-105 4-6ft	GZ-108 2-4ft	GZ-108T 0-0_5ft	GZ-109 0_5-2_5ft	GZ-111 7-8ft	GZ-113 2-4ft	GZ-113T 0-0_5ft	GZ-114 2-5ft	GZ-114T 0-0_5ft	GZ-116 0_5-2ft	GZ-116 2-4ft	GZ-116 6-8ft	GZ-116T 0-0_5ft	GZ-119 2-4ft	GZ-119T 0-0_5ft	GZ-122 0_5-2ft	GZ-122 2-4ft	GZ-122T 0-0_5ft	GZ-126 0_5-2ft
Date Sampled			08/01/2013	08/06/2013	08/06/2013	08/01/2013	08/01/2013	08/06/2013	08/02/2013	08/01/2013	08/01/2013	08/06/2013	08/01/2013	08/06/2013	08/02/2013	08/02/2013	08/02/2013	08/06/2013	08/01/2013	08/01/2013	08/02/2013	08/02/2013	08/06/2013	08/05/2013
Depth (ft)			6-8	2-4	0-0.5	4-6	2-4	0-0.5	0.5-2.5	7-8	2-4	0-0.5	2-5	0-0.5	0.5-2	2-4	6-8	0-0.5	2-4	0-0.5	0.5-2	2-4	0-0.5	0.5-2
Type			Deep	Deep	Shallow	Deep	Deep	Shallow	Shallow	Deep	Deep	Shallow	Deep	Shallow	Shallow	Deep	Deep	Shallow	Deep	Shallow	Shallow	Deep	Shallow	Shallow
Group			ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	OFF-W	OFF-W	OFF-W	OFF-W
Analyte	ERLs	ERMs																						
Semi-Volatile Organic Compounds (SVOCs)																								
1,2,4-Trichlorobenzene	NA	NA	<0.448	<0.473	<0.747	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	<0.293	<0.813	<0.544	<0.255	<0.245	<0.229	<0.203
1,2-Dichlorobenzene	NA	0.013 b	<0.448	0.564	<0.747	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	<0.293	<0.813	<0.544	<0.255	<0.245	<0.229	<0.203
1,3-Dichlorobenzene	NA	NA	<0.448	<0.473	<0.747	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	<0.293	<0.813	<0.544	<0.255	<0.245	<0.229	<0.203
1,4-Dichlorobenzene	NA	0.11 a	<0.448	<0.473	<0.747	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	<0.293	<0.813	<0.544	<0.255	<0.245	<0.229	<0.203
2,4,5-Trichlorophenol	NA	0.003 b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	NA	0.005 b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Chloronaphthalene	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Chlorophenol	NA	0.008 b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	0.07 a	0.67 a	<0.448	<0.473	<0.747	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	<0.293	<0.813	<0.544	<0.255	<0.245	<0.229	<0.203
2-Methylphenol	NA	NA	<0.448	<0.473	<0.747	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	<0.293	<0.813	<0.544	<0.255	<0.245	<0.229	<0.203
2-Nitrophenol	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3&4-Methylphenol	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chloroaniline	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Nitrophenol	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acetophenone	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	0.016 a	0.5 a	<0.448	<0.473	<0.747	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	<0.293	<0.813	<0.544	<0.255	<0.245	<0.229	<0.203
Acenaphthylene	0.044 a	0.64 a	<0.448	<0.473	<0.747	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	<0.293	<0.813	<0.544	<0.255	<0.245	<0.229	<0.203
Aniline	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	0.085 a	1.1 a	<0.448	<0.473	<0.747	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	<0.293	<0.813	<0.544	<0.255	<0.245	<0.229	<0.203
Azobenzene	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	0.261 a	1.6 a	<0.448	**0.577**	**1.86**	**0.567**	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	**0.442**	<0.813	**0.715**	<0.255	<0.245	<0.229	<0.203
Benzo(a)pyrene	0.43 a	1.6 a	<0.225	**0.602**	**1.72**	**0.579**	**0.552**	**0.58**	<0.767	<0.360	<0.927	0.231	0.354	<0.283	<0.455	<0.696	<0.129	**0.596**	<0.408	**1.03**	<0.128	<0.123	<0.115	<0.102
Benzo(b)fluoranthene	NA	1.8 b	<0.448	0.811	2.03	0.706	0.701	0.767	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	0.981	<0.813	1.62	<0.255	<0.245	<0.229	<0.203
Benzo(g,h,i)perylene	NA	NA	<0.448	<0.473	0.826	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	<0.293	<0.813	<0.544	<0.255	<0.245	<0.229	<0.203
Benzo(k)fluoranthene	NA	NA	<0.448	<0.473	1.16	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	0.342	<0.813	0.724	<0.255	<0.245	<0.229	<0.203
bis(2-Chloroethoxy)methane	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-chloroisopropyl)Ether	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	0.18216 b	2.64651 b	**498**	**357**	**7**	**74**	**44.5**	**4.27**	<1.53	**15.2**	**30.4**	**2.27**	**1270**	**0.979**	**543**	**4.44**	<0.258	**2.94**	**1170**	**131**	<0.255	<0.245	<0.229	<0.203
Butylbenzylphthalate	NA	0.063 b	0.748	0.598	<0.747	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	<0.293	<0.813	<0.544	<0.255	<0.245	<0.229	<0.203
Carbazole	NA	NA	<0.448	<0.473	<0.747	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	<0.293	<0.813	<0.544	<0.255	<0.245	<0.229	<0.203
Chrysene	0.384 a	2.8 a	<0.225	**0.84**	**2.09**	**0.656**	**0.629**	**0.63**	**1.88**	<0.360	<0.927	0.256	**0.567**	<0.283	<0.455	<0.696	<0.129	**0.647**	<0.408	**1.15**	<0.128	<0.123	<0.115	<0.102
Dibenzo(a,h)Anthracene	0.063 a	0.26 a	<0.225	<0.237	<0.375	<0.184	<0.281	<0.347	<0.767	<0.360	<0.927	<0.158	<0.351	<0.283	<0.455	<0.696	<0.129	<0.147	<0.408	<0.273	<0.128	<0.123	<0.115	<0.102
Dibenzofuran	NA	NA	<0.448	<0.473	<0.747	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	<0.293	<0.813	<0.544	<0.255	<0.245	<0.229	<0.203
Diethylphthalate	NA	0.006 b	<0.448	<0.473	<0.747	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	<0.293	<0.813	<0.544	<0.255	<0.245	<0.229	<0.203
Dimethylphthalate	NA	NA	<0.448	<0.473	<0.747	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	<0.293	<0.813	<0.544	<0.255	<0.245	<0.229	<0.203
Di-n-butylphthalate	NA	0.058 b	<0.448	<0.473	<0.747	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	<0.293	<0.813	<0.544	<0.255	<0.245	<0.229	<0.203
Di-n-octylphthalate	NA	NA	36.2	28.2	<0.747	<0.366	1.13	<0.691	<1.53	0.751	<1.85	<0.314	46.7	<0.563	34.8	<1.39	<0.258	<0.293	2.34	7.86	<0.255	<0.245	<0.229	<0.203
Fluoranthene	0.6 a	5.1 a	<0.448	**1.39**	**3.53**	**1**	**1.21**	**1.02**	**4.91**	<0.718	<1.85	0.431	**1.49**	<0.563	**0.981**	<1.39	<0.258	**0.901**	<0.813	**1.89**	<0.255	<0.245	<0.229	<0.203
Fluorene	0.019 a	0.54 a	<0.448	<0.473	<0.747	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	<0.293	<0.813	<0.544	<0.255	<0.245	<0.229	<0.203
Hexachlorobenzene	NA	NA	<0.448	<0.473	<0.747	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	<0.293	<0.813	<0.544	<0.255	<0.245	<0.229	<0.203
Hexachlorobutadiene	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachloroethane	NA	0.073 b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)Pyrene	NA	NA	<0.448	<0.473	<0.747	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	<0.293	<0.813	<0.544	<0.255	<0.245	<0.229	<0.203
Isophorone	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	0.16 a	2.1 a	<0.448	<0.473	<0.747	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	**3.17**	<0.563	<0.906	<1.39	<0.258	<0.293	**1.05**	<0.544	<0.255	<0.245	<0.229	<0.203
Nitrobenzene	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Nitrosodimethylamine	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol	NA	0.017 b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	0.24 a	1.5 a	<0.448	**0.497**	**0.952**	**0.422**	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	**1.62**	<0.563	<0.906	<1.39	<0.258	<0.293	<0.813	**0.621**	<0.255	<0.245	<0.229	<0.203
Phenol	NA	0.13 b	<0.448	<0.473	<0.747	<0.366	<0.561	<0.691	<1.53	<0.718	<1.85	<0.314	<0.701	<0.563	<0.906	<1.39	<0.258	<0.293	<0.813	<0.544	<0.255	<0.245	<0.229	<0.203
Pyrene	0.665 a	2.6 a	<0.448	**1.11**	**3.19**	**1.06**	**1.01**	**0.987**	**5.34**	<0.718	<1.85	0.408	**1.18**	<0.563	<0.906	<1.39	<0.258	**0.816**	<0.813	**1.56**	<0.255	<0.245	<0.229	<0.203

Sample ID	Marine Sediment Benchmarks		GZ-126 2-4ft	GZ-126T 0-0_5ft	GZ-134 2-3ft	GZ-134 6-8ft	GZ-134T 0-0_5ft	GZ-136 0_5-2ft	GZ-137 2-4ft	GZ-137T 0-0_5ft	GZ-140A 2-3ft	GZ-201 0ft-0_5ft	GZ-201 0ft-3ft	GZ-202 0ft-0_5ft	GZ-203 0ft-0_5ft	GZ-203 0ft-3ft	GZ-204 0ft-0_5ft	GZ-204 2ft-4ft	GZ-205 0ft-0_5ft	GZ-205 0ft-3ft	GZ-206 0ft-0_5ft	GZ-206 0ft-3ft	GZ-206 4ft-6ft	GZ-207 0ft-0_5ft
Date Sampled			08/05/2013	08/06/2013	08/02/2013	08/02/2013	08/06/2013	08/05/2013	08/05/2013	08/06/2013	08/05/2013			03/24/2015	03/24/2015	03/24/2015	03/24/2015	03/24/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015
Depth (ft)			2-4	0-0.5	2-3	6-8	0-0.5	0.5-2	2-4	0-0.5	2-3	0-0.5	0-3	0-0.5	0-0.5	0-3	0.0.5	2-4	0-0.5	0-3	0-0.5	0-3	4-6	0-0.5
Type			Deep	Shallow	Shallow	Deep	Shallow	Shallow	Deep	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Deep	Shallow	Shallow	Shallow	Shallow	Deep	Shallow
Group			OFF-W	OFF-W	ON	ON	ON	OFF-W	OFF-W	OFF-W	OFF-W	OFF-E	OFF-E	OFF-E	OFF-E	OFF-E	OFF-E	OFF-E	OFF-E	OFF-E	ON	ON	ON	ON
Analyte	ERLs	ERMs																						
Semi-Volatile Organic Compounds (SVOCs)																								
1,2,4-Trichlorobenzene	NA	NA	<0.327	<0.252	<0.593	<0.316	<0.511	<0.241	<0.415	<0.329	<0.629	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
1,2-Dichlorobenzene	NA	0.013 b	<0.327	<0.252	<0.593	<0.316	<0.511	<0.241	<0.415	<0.329	<0.629	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
1,3-Dichlorobenzene	NA	NA	<0.327	<0.252	<0.593	<0.316	<0.511	<0.241	<0.415	<0.329	<0.629	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
1,4-Dichlorobenzene	NA	0.11 a	<0.327	<0.252	<0.593	<0.316	<0.511	<0.241	<0.415	<0.329	<0.629	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
2,4,5-Trichlorophenol	NA	0.003 b	-	-	-	-	-	-	-	-	-	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
2,4,6-Trichlorophenol	NA	NA	-	-	-	-	-	-	-	-	-	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
2,4-Dichlorophenol	NA	0.005 b	-	-	-	-	-	-	-	-	-	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
2,4-Dimethylphenol	NA	NA	-	-	-	-	-	-	-	-	-	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
2,4-Dinitrophenol	NA	NA	-	-	-	-	-	-	-	-	-	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
2,4-Dinitrotoluene	NA	NA	-	-	-	-	-	-	-	-	-	<2.99	<2.15	<3.33	<2.31	<2.32	<2.30	<2.94	<2.10	<2.61	<2.69	<2.38	<1.37	<2.59
2,6-Dinitrotoluene	NA	NA	-	-	-	-	-	-	-	-	-	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
2-Chloronaphthalene	NA	NA	-	-	-	-	-	-	-	-	-	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
2-Chlorophenol	NA	0.008 b	-	-	-	-	-	-	-	-	-	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
2-Methylnaphthalene	0.07 a	0.67 a	<0.327	<0.252	<0.593	**5.37**	<0.511	<0.241	<0.415	<0.329	<0.629	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylphenol	NA	NA	<0.327	<0.252	<0.593	<0.316	<0.511	<0.241	<0.415	<0.329	<0.629	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
2-Nitrophenol	NA	NA	-	-	-	-	-	-	-	-	-	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
3,3'-Dichlorobenzidine	NA	NA	-	-	-	-	-	-	-	-	-	<1.19	<0.857	<1.33	<0.922	<0.927	<0.920	<1.18	<0.839	<1.04	<1.07	<0.949	<0.547	<1.03
3&4-Methylphenol	NA	NA	-	-	-	-	-	-	-	-	-	<1.19	<0.857	<1.33	<0.922	<0.927	<0.920	<1.18	<0.839	<1.04	<1.07	<0.949	<0.547	<1.03
4-Bromophenyl-phenylether	NA	NA	-	-	-	-	-	-	-	-	-	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
4-Chloroaniline	NA	NA	-	-	-	-	-	-	-	-	-	<1.19	<0.857	<1.33	<0.922	<0.927	<0.920	<1.18	<0.839	<1.04	<1.07	<0.949	<0.547	<1.03
4-Chlorophenol	NA	NA	-	-	-	-	-	-	-	-	-	<2.99	<2.15	<3.33	<2.31	<2.32	<2.30	<2.94	<2.10	<2.61	<2.69	<2.38	<1.37	<2.59
Acetophenone	NA	NA	-	-	-	-	-	-	-	-	-	<1.19	<0.857	<1.33	<0.922	<0.927	<0.920	<1.18	<0.839	<1.04	<1.07	<0.949	<0.547	<1.03
Acenaphthene	0.016 a	0.5 a	<0.327	<0.252	<0.593	**1.88**	<0.511	**0.3**	<0.415	<0.329	<0.629	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	0.044 a	0.64 a	<0.327	<0.252	<0.593	**0.677**	<0.511	<0.241	<0.415	<0.329	<0.629	-	-	-	-	-	-	-	-	-	-	-	-	-
Aniline	NA	NA	-	-	-	-	-	-	-	-	-	<2.99	<2.15	<3.33	<2.31	<2.32	<2.30	<2.94	<2.10	<2.61	<2.69	<2.38	<1.37	<2.59
Anthracene	0.085 a	1.1 a	<0.327	<0.252	<0.593	**2.38**	<0.511	**1.46**	<0.415	<0.329	<0.629	-	-	-	-	-	-	-	-	-	-	-	-	-
Azobenzene	NA	NA	-	-	-	-	-	-	-	-	-	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
Benzo(a)anthracene	0.261 a	1.6 a	<0.327	**0.368**	<0.593	**1.9**	**0.62**	**0.828**	**0.451**	**0.819**	**1.52**	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	0.43 a	1.6 a	<0.164	0.379	0.325	**1.22**	**0.775**	**0.754**	0.399	**1.04**	**1.56**	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	NA	1.8 b	<0.327	0.486	0.799	1.49	1.1	1.15	0.425	1.48	1.63	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	NA	NA	<0.327	<0.252	<0.593	<0.316	0.554	<0.241	<0.415	<0.329	0.717	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	NA	NA	<0.327	<0.252	<0.593	0.872	<0.511	0.321	<0.415	0.632	0.824	-	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	NA	NA	-	-	-	-	-	-	-	-	-	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
bis(2-Chloroethyl)ether	NA	NA	-	-	-	-	-	-	-	-	-	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
bis(2-chloroisopropyl)Ether	NA	NA	-	-	-	-	-	-	-	-	-	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
bis(2-Ethylhexyl)phthalate	0.18216 b	2.64651 b	<0.327	**0.42**	**1870**	**789**	**4.51**	**5.87**	**30.1**	**6.37**	**2.75**	**1.14**	**76**	**1.1**	**2.04**	**252**	**1.84**	**1120**	**1.67**	**694**	**0.859**	**113**	**32.5**	**2.42**
Butylbenzylphthalate	NA	0.063 b	<0.327	<0.252	0.844	0.68	<0.511	<0.241	<0.415	<0.329	<0.629	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
Carbazole	NA	NA	<0.327	<0.252	<0.593	<0.316	<0.511	0.4	<0.415	<0.329	<0.629	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	0.384 a	2.8 a	<0.164	**0.426**	**0.463**	**1.85**	**0.866**	**0.853**	**0.421**	**1.09**	**1.59**	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzo(a,h)Anthracene	0.063 a	0.26 a	<0.164	<0.126	<0.297	<0.158	<0.256	<0.121	<0.208	**0.173**	**0.332**	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzofuran	NA	NA	<0.327	<0.252	<0.593	0.624	<0.511	0.727	<0.415	<0.329	<0.629	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
Diethylphthalate	NA	0.006 b	<0.327	<0.252	<0.593	<0.316	<0.511	<0.241	<0.415	<0.329	<0.629	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
Dimethylphthalate	NA	NA	<0.327	<0.252	<0.593	<0.316	<0.511	<0.241	<0.415	<0.329	<0.629	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
Di-n-butylphthalate	NA	0.058 b	<0.327	<0.252	<0.593	<0.316	<0.511	<0.241	<0.415	<0.329	<0.629	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
Di-n-octylphthalate	NA	NA	<0.327	<0.252	40.5	4.14	<0.511	<0.241	<0.415	<0.329	<0.629	<0.596	1.35	<0.663	<0.460	5.25	<0.459	2.19	<0.419	2.47	<0.536	2.85	<0.273	<0.516
Fluoranthene	0.6 a	5.1 a	<0.327	**0.649**	**1.13**	**4.34**	**1.31**	**3.55**	**0.725**	**1.77**	**2.45**	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	0.019 a	0.54 a	<0.327	<0.252	<0.593	**2.92**	<0.511	**0.528**	<0.415	<0.329	<0.629	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	NA	NA	<0.327	<0.252	<0.593	<0.316	<0.511	<0.241	<0.415	<0.329	<0.629	-	-	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
Hexachlorobutadiene	NA	NA	-	-	-	-	-	-	-	-	-	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	0.178	0.282
Hexachloroethane	NA	0.073 b	-	-	-	-	-	-	-	-	-	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
Indeno(1,2,3-cd)Pyrene	NA	NA	<0.327	<0.252	<0.593	<0.316	<0.511	<0.241	<0.415	<0.329	<0.629	-	-	-	-	-	-	-	-	-	-	-	-	-
Isophorone	NA	NA	-	-	-	-	-	-	-	-	-	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
Naphthalene	0.16 a	2.1 a	<0.327	<0.252	**4.34**	<0.316	<0.511	<0.241	<0.415	<0.329	<0.629	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrobenzene	NA	NA	-	-	-	-	-	-	-	-	-	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
N-Nitrosodimethylamine	NA	NA	-	-	-	-	-	-	-	-	-	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
Pentachlorophenol	NA	0.017 b	-	-	-	-	-	-	-	-	-	<2.99	<2.15	<3.33	<2.31	<2.32	<2.30	<2.94	<2.10	<2.61	<2.69	<2.38	<1.37	<2.59
Phenanthrene	0.24 a	1.5 a	<0.327	**0.282**	**1.56**	**6.55**	<0.511	**5.97**	<0.415	**0.68**	<0.629	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenol	NA	0.13 b	<0.327	<0.252	<0.593	<0.316	<0.511	<0.241	<0.415	<0.329	<0.629	<0.596	<0.428	<0.663	<0.460	<0.463	<0.459	<0.587	<0.419	<0.521	<0.536	<0.474	<0.273	<0.516
Pyrene	0.665 a	2.6 a	<0.327	0.597	**0.87**	**3.79**	**1.36**	**2.34**	**1.1**	**1.55**	**4.05**	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3C
SEDIMENT SEMI-VOLATILE ORAGNIC COMPOUNDS RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Marine Sediment Benchmarks		GZ-207 0ft-3ft	GZ-208 0ft-0_5ft	GZ-209 0ft-0_5ft	GZ-209 2ft-4ft	GZ-210 0ft-0_5ft	GZ-211 0ft-0_5ft	GZ-211 0ft-3ft	GZ-212 0ft-0_5ft	GZ-213 0ft-0_5ft	GZ-213 0ft-3ft	GZ-214 0ft-0_5ft	GZ-214 2ft-4ft	GZ-214 4ft-6ft	GZ-215 0ft-0_5ft	GZ-215 0ft-3ft	GZ-216 0ft-0_5ft	GZ-216 2ft-4ft	GZ-217 0ft-0_5ft	GZ-217 0ft-3ft	GZ-218 0_5ft-2ft	GZ-218 0ft-0_5ft	GZ-219 0ft-0_5ft
Date Sampled			3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/30/2015	3/30/2015	3/30/2015	03/24/2015	3/25/2015	3/25/2015	3/30/2015	3/30/2015				03/24/2015	03/24/2015	03/24/2015	03/24/2015	3/25/2015	3/25/2015	3/25/2015
Depth (ft)			0-3	0-0.5	0-0.5	2-4	0-0.5	0-0.5	0-3	0-0.5	0-0.5	0-3	0-0.5	2-4	4-6	0-0.5	0-3	0-0.5	2-4	0-0.5	0-3	0.5-2	0-0.5	0-0.5
Type			Shallow	Shallow	Shallow	Deep	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Deep	Deep	Shallow	Shallow	Shallow	Deep	Shallow	Shallow	Shallow	Shallow	Shallow
Group			ON	ON	ON	ON	OFF-E	OFF-E	OFF-E	OFF-E	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Analyte	ERLs	ERMs																						
Semi-Volatile Organic Compounds (SVOCs)																								
1,2,4-Trichlorobenzene	NA	NA	<0.0163	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
1,2-Dichlorobenzene	NA	0.013 b	<0.0163	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
1,3-Dichlorobenzene	NA	NA	<0.0163	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
1,4-Dichlorobenzene	NA	0.11 a	<0.0163	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
2,4,5-Trichlorophenol	NA	0.003 b	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
2,4,6-Trichlorophenol	NA	NA	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
2,4-Dichlorophenol	NA	0.005 b	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
2,4-Dimethylphenol	NA	NA	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
2,4-Dinitrophenol	NA	NA	<2.23	<2.61	<2.84	<3.69	<1.14	<1.08	<1.15	<1.14	<1.43	<1.27	<1.65	<1.26	<1.20	<1.46	<1.08	<3.00	<1.35	<1.42	<1.28	<1.45	<1.68	<1.53
2,4-Dinitrotoluene	NA	NA	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
2,6-Dinitrotoluene	NA	NA	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
2-Chloronaphthalene	NA	NA	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
2-Chlorophenol	NA	0.008 b	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
2-Methylnaphthalene	0.07 a	0.67 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylphenol	NA	NA	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
2-Nitrophenol	NA	NA	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
3,3'-Dichlorobenzidine	NA	NA	<0.889	<1.04	<1.13	<1.47	<0.455	<0.431	<0.459	<0.455	<0.570	<0.509	<0.659	<0.501	<0.479	<0.583	<0.431	<1.20	<0.539	<0.567	<0.510	<0.578	<0.671	<0.612
3&4-Methylphenol	NA	NA	<0.889	<1.04	<1.13	<1.47	<0.455	<0.431	<0.459	<0.455	<0.570	<0.509	<0.659	<0.501	<0.479	<0.583	<0.431	<1.20	<0.539	<0.567	<0.510	<0.578	<0.671	<0.612
4-Bromophenyl-phenylether	NA	NA	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
4-Chloroaniline	NA	NA	<0.889	<1.04	<1.13	<1.47	<0.455	<0.431	<0.459	<0.455	<0.570	<0.509	<0.659	<0.501	<0.479	<0.583	<0.431	<1.20	<0.539	<0.567	<0.510	<0.578	<0.671	<0.612
4-Nitrophenol	NA	NA	<2.23	<2.61	<2.84	<3.69	<1.14	<1.08	<1.15	<1.14	<1.43	<1.27	<1.65	<1.26	<1.20	<1.46	<1.08	<3.00	<1.35	<1.42	<1.28	<1.45	<1.68	<1.53
4-Nitroquinoline-1-oxide	NA	NA	<0.889	<1.04	<1.13	<1.47	<0.455	<0.431	<0.459	<0.455	<0.570	<0.509	<0.659	<0.501	<0.479	<0.583	<0.431	<1.20	<0.539	<0.567	<0.510	<0.578	<0.671	<0.612
Acenaphthene	0.016 a	0.5 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	0.044 a	0.64 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aniline	NA	NA	<2.23	<2.61	<2.84	<3.69	<1.14	<1.08	<1.15	<1.14	<1.43	<1.27	<1.65	<1.26	<1.20	<1.46	<1.08	<3.00	<1.35	<1.42	<1.28	<1.45	<1.68	<1.53
Anthracene	0.085 a	1.1 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Azobenzene	NA	NA	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
Benzo(a)anthracene	0.261 a	1.6 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	0.43 a	1.6 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	NA	1.8 b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	NA	NA	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
bis(2-Chloroethyl)ether	NA	NA	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
bis(2-chloroisopropyl)Ether	NA	NA	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
bis(2-Ethylhexyl)phthalate	0.18216 b	2.64651 b	**133**	**10.5**	**1.65**	**2900**	<0.227	**0.363**	<0.229	**0.5**	**3.29**	<0.254	**0.874**	<0.250	<0.239	**1.1**	<0.215	**7.28**	<0.269	**0.358**	<0.254	**0.307**	**3.37**	**0.631**
Butylbenzylphthalate	NA	0.063 b	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
Carbazole	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	0.384 a	2.8 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzo(a,h)Anthracene	0.063 a	0.26 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzofuran	NA	NA	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
Diethylphthalate	NA	0.006 b	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
Dimethylphthalate	NA	NA	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
Di-n-butylphthalate	NA	0.058 b	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
Di-n-octylphthalate	NA	NA	6.22	0.669	<0.567	183	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
Fluoranthene	0.6 a	5.1 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	0.019 a	0.54 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	NA	NA	<0.444	<0.520	<0.567	<0.735	-	-	-	<0.227	<0.284	<0.254	-	-	-	-	-	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
Hexachlorobutadiene	NA	NA	<0.0163	-	-	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
Hexachloroethane	NA	0.073 b	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
Indeno(1,2,3-cd)Pyrene	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Isophorone	NA	NA	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
Naphthalene	0.16 a	2.1 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrobenzene	NA	NA	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
N-Nitrosodimethylamine	NA	NA	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
Pentachlorophenol	NA	0.017 b	<2.23	<2.61	<2.84	<3.69	<1.14	<1.08	<1.15	<1.14	<1.43	<1.27	<1.65	<1.26	<1.20	<1.46	<1.08	<3.00	<1.35	<1.42	<1.28	<1.45	<1.68	<1.53
Phenanthrene	0.24 a	1.5 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenol	NA	0.13 b	<0.444	<0.520	<0.567	<0.735	<0.227	<0.215	<0.229	<0.227	<0.284	<0.254	<0.329	<0.250	<0.239	<0.291	<0.215	<0.599	<0.269	<0.283	<0.254	<0.289	<0.335	<0.306
Pyrene	0.665 a	2.6 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Marine Sediment Benchmarks		GZ-219 0ft-3ft	GZ-220 0_5ft-2ft	GZ-220 0ft-0_5ft	GZ-221 0ft-0_5ft	GZ-221 0ft-3ft	GZ-222 0ft-0_5ft	GZ-223 0ft-0_5ft	GZ-223 0ft-3ft	GZ-224 0_5ft-2ft	GZ-224 0ft-0_5ft	GZ-225 0ft-0_5ft	GZ-225 0ft-3ft	GZ-226 0ft-0_5ft	LC-101 0ft-0_5ft	LC-102 0_5ft-2ft	LC-102 0ft-0_5ft	LC-103 0ft-0_5ft	LC-104 0ft-0_5ft	LC-105 0ft-0_5ft	LC-105 4ft-6ft	LC-106 0_5ft-2ft	LC-106 0ft-0_5ft
Date Sampled			3/25/2015	3/30/2015	3/30/2015	3/30/2015	3/30/2015	3/30/2015	3/30/2015	3/30/2015	3/30/2015	3/30/2015	03/27/2015	03/27/2015	3/30/2015	03/26/2015	03/26/2015	03/26/2015	03/26/2015	03/26/2015	03/26/2015	03/26/2015	03/26/2015	03/26/2015
Depth (ft)			0-3	0.5-2	0-0.5	0-0.5	0-3	0-0.5	0-0.5	0-3	0.5-2	0-0.5	0-0.5	0-3	0-0.5	0-0.5	0.5-2	0-0.5	0-0.5	0-0.5	0-0.5	4-6	0.5-2	0-0.5
Type			Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Deep	Shallow	Shallow
Group			ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	LC	LC	LC	LC	LC	LC	LC	LC	LC
Analyte	ERLs	ERMs																						
Semi-Volatile Organic Compounds (SVOCs)																								
1,2,4-Trichlorobenzene	NA	NA	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
1,2-Dichlorobenzene	NA	0.013 b	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
1,3-Dichlorobenzene	NA	NA	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
1,4-Dichlorobenzene	NA	0.11 a	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
2,4,5-Trichlorophenol	NA	0.003 b	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
2,4,6-Trichlorophenol	NA	NA	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
2,4-Dichlorophenol	NA	0.005 b	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
2,4-Dimethylphenol	NA	NA	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
2,4-Dinitrophenol	NA	NA	<1.31	<3.60	<1.66	<1.73	<1.34	<1.52	<1.61	<1.66	<1.55	<1.23	<1.68	<1.42	<1.52	<1.68	<2.53	<2.50	<1.87	<2.28	<2.50	<1.07	<2.20	<2.60
2,4-Dinitrotoluene	NA	NA	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
2,6-Dinitrotoluene	NA	NA	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
2-Chloronaphthalene	NA	NA	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
2-Chlorophenol	NA	0.008 b	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
2-Methylnaphthalene	0.07 a	0.67 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylphenol	NA	NA	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
2-Nitrophenol	NA	NA	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
3,3'-Dichlorobenzidine	NA	NA	<0.522	<1.44	<0.663	<0.692	<0.535	<0.606	<0.645	<0.661	<0.618	<0.489	<0.670	<0.568	<0.608	<0.671	<1.01	<1.00	<0.747	<0.912	<0.997	<0.428	<0.879	<1.04
3+4-Methylphenol	NA	NA	<0.522	<1.44	<0.663	<0.692	<0.535	<0.606	<0.645	<0.661	<0.618	<0.489	<0.670	<0.568	<0.608	<0.671	<1.01	<1.00	<0.747	<0.912	<0.997	<0.428	<0.879	<1.04
4-Bromophenyl-phenylether	NA	NA	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
4-Chloroaniline	NA	NA	<0.522	<1.44	<0.663	<0.692	<0.535	<0.606	<0.645	<0.661	<0.618	<0.489	<0.670	<0.568	<0.608	<0.671	<1.01	<1.00	<0.747	<0.912	<0.997	<0.428	<0.879	<1.04
4-Nitrophenol	NA	NA	<1.31	<3.60	<1.66	<1.73	<1.34	<1.52	<1.61	<1.66	<1.55	<1.23	<1.68	<1.42	<1.52	<1.68	<2.53	<2.50	<1.87	<2.28	<2.50	<1.07	<2.20	<2.60
Acetophenone	NA	NA	<0.522	<1.44	<0.663	<0.692	<0.535	<0.606	<0.645	<0.661	<0.618	<0.489	<0.670	<0.568	<0.608	<0.671	<1.01	<1.00	<0.747	<0.912	<0.997	<0.428	<0.879	<1.04
Acenaphthene	0.016 a	0.5 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	0.044 a	0.64 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aniline	NA	NA	<1.31	<3.60	<1.66	<1.73	<1.34	<1.52	<1.61	<1.66	<1.55	<1.23	<1.68	<1.42	<1.52	<1.68	<2.53	<2.50	<1.87	<2.28	<2.50	<1.07	<2.20	<2.60
Anthracene	0.085 a	1.1 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Azobenzene	NA	NA	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
Benzo(a)anthracene	0.261 a	1.6 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	0.43 a	1.6 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	NA	1.8 b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	NA	NA	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
bis(2-Chloroethyl)ether	NA	NA	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
bis(2-chloroisopropyl)Ether	NA	NA	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
bis(2-Ethylhexyl)phthalate	0.18216 b	2.64651 b	<0.261	<0.718	**1.5**	**2.11**	<0.267	**1.33**	**1.34**	<0.330	<0.309	**0.502**	**1.01**	**3.08**	**1.54**	**2.34**	**278**	**2.58**	**1.8**	**2.44**	**2.43**	**0.586**	**25.4**	**1.53**
Butylbenzylphthalate	NA	0.063 b	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
Carbazole	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	0.384 a	2.8 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzo(a,h)Anthracene	0.063 a	0.26 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzofuran	NA	NA	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
Diethylphthalate	NA	0.006 b	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
Dimethylphthalate	NA	NA	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
Di-n-butylphthalate	NA	0.058 b	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
Di-n-octylphthalate	NA	NA	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	25.1	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
Fluoranthene	0.6 a	5.1 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	0.019 a	0.54 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	NA	NA	<0.261	-	-	-	-	-	-	-	-	-	-	-	-	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	-	-
Hexachlorobutadiene	NA	NA	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
Hexachloroethane	NA	0.073 b	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
Indeno(1,2,3-cd)Pyrene	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Isophorone	NA	NA	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
Naphthalene	0.16 a	2.1 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrobenzene	NA	NA	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
N-Nitrosodimethylamine	NA	NA	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
Pentachlorophenol	NA	0.017 b	<1.31	<3.60	<1.66	<1.73	<1.34	<1.52	<1.61	<1.66	<1.55	<1.23	<1.68	<1.42	<1.52	<1.68	<2.53	<2.50	<1.87	<2.28	<2.50	<1.07	<2.20	<2.60
Phenanthrene	0.24 a	1.5 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenol	NA	0.13 b	<0.261	<0.718	<0.331	<0.345	<0.267	<0.302	<0.322	<0.330	<0.309	<0.244	<0.335	<0.283	<0.304	<0.335	<0.505	<0.500	<0.373	<0.455	<0.498	<0.214	<0.439	<0.518
Pyrene	0.665 a	2.6 a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3C
SEDIMENT SEMI-VOLATILE ORAGNIC COMPOUNDS RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID / Date Sampled / Depth (ft) / Type / Group / Analyte	Marine Sediment Benchmarks ERLs		Marine Sediment Benchmarks ERMs		LC-107 0ft-0_5ft 03/26/2015 0-0.5 Shallow LC	LC-107 2ft-4ft 03/26/2015 2-4 Deep LC	LC-108 0ft-0_5ft 03/26/2015 0-0.5 Shallow LC	LC-108 4ft-6ft 03/26/2015 4-6 Deep LC	LC-109 0ft-0_5ft 03/26/2015 0-0.5 Shallow LC	LC-110 0ft-0_5ft 03/27/2015 0-0.5 Shallow LC	LC-111 0ft-0_5ft 03/27/2015 0-0.5 Shallow LC	LC-112 0ft-0_5ft 03/27/2015 0-0.5 Shallow LC	LC-112 4ft-6ft 03/27/2015 4-6 Deep LC
Semi-Volatile Organic Compounds (SVOCs)													
1,2,4-Trichlorobenzene	NA		NA		<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
1,2-Dichlorobenzene	NA		0.013	b	<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
1,3-Dichlorobenzene	NA		NA		<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
1,4-Dichlorobenzene	NA		0.11	a	<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
2,4,5-Trichlorophenol	NA		0.003	b	<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
2,4,6-Trichlorophenol	NA		NA		<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
2,4-Dichlorophenol	NA		0.005	b	<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
2,4-Dimethylphenol	NA		NA		<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
2,4-Dinitrophenol	NA		NA		<2.73	<1.68	<2.59	<1.22	<2.40	<2.01	<2.12	<2.08	<1.08
2,4-Dinitrotoluene	NA		NA		<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
2,6-Dinitrotoluene	NA		NA		<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
2-Chloronaphthalene	NA		NA		<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
2-Chlorophenol	NA		0.008	b	<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
2-Methylnaphthalene	0.07	a	0.67	a	-	-	-	-	-	-	-	-	-
2-Methylphenol	NA		NA		<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
2-Nitrophenol	NA		NA		<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
3,3´-Dichlorobenzidine	NA		NA		<1.09	<0.671	<1.03	<0.488	<0.959	<0.805	<0.847	<0.829	<0.433
3+4-Methylphenol	NA		NA		<1.09	<0.671	<1.03	<0.488	<0.959	<0.805	<0.847	<0.829	<0.433
4-Bromophenyl-phenylether	NA		NA		<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
4-Chloroaniline	NA		NA		<1.09	<0.671	<1.03	<0.488	<0.959	<0.805	<0.847	<0.829	<0.433
4-Nitrophenol	NA		NA		<2.73	<1.68	<2.59	<1.22	<2.40	<2.01	<2.12	<2.08	<1.08
Acetophenone	NA		NA		<1.09	<0.671	<1.03	<0.488	<0.959	<0.805	<0.847	<0.829	<0.433
Acenaphthene	0.016	a	0.5	a	-	-	-	-	-	-	-	-	-
Acenaphthylene	0.044	a	0.64	a	-	-	-	-	-	-	-	-	-
Aniline	NA		NA		<2.73	<1.68	<2.59	<1.22	<2.40	<2.01	<2.12	<2.08	<1.08
Anthracene	0.085	a	1.1	a	-	-	-	-	-	-	-	-	-
Azobenzene	NA		NA		<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
Benzo(a)anthracene	0.261	a	1.6	a	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	0.43	a	1.6	a	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	NA		1.8	b	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	NA		NA		-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	NA		NA		-	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	NA		NA		<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
bis(2-Chloroethyl)ether	NA		NA		<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
bis(2-chloroisopropyl)Ether	NA		NA		<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
bis(2-Ethylhexyl)phthalate	0.18216	b	2.64651	b	**5.95**	**250**	**3.62**	**35.7**	**2.33**	**3.02**	**2.17**	**2.53**	<0.216
Butylbenzylphthalate	NA		0.063	b	<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
Carbazole	NA		NA		-	-	-	-	-	-	-	-	-
Chrysene	0.384	a	2.8	a	-	-	-	-	-	-	-	-	-
Dibenzo(a,h)Anthracene	0.063	a	0.26	a	-	-	-	-	-	-	-	-	-
Dibenzofuran	NA		NA		<0.545	<0.335	<0.516	0.861	<0.479	<0.402	<0.423	<0.414	<0.216
Diethylphthalate	NA		0.006	b	<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
Dimethylphthalate	NA		NA		<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
Di-n-butylphthalate	NA		0.058	b	<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
Di-n-octylphthalate	NA		NA		<0.545	43.5	<0.516	1.26	<0.479	<0.402	<0.423	<0.414	<0.216
Fluoranthene	0.6	a	5.1	a	-	-	-	-	-	-	-	-	-
Fluorene	0.019	a	0.54	a	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	NA		NA		<0.545	<0.335	<0.516	<0.244	<0.479	-	-	-	-
Hexachlorobutadiene	NA		NA		<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
Hexachloroethane	NA		0.073	b	<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
Indeno(1,2,3-cd)Pyrene	NA		NA		-	-	-	-	-	-	-	-	-
Isophorone	NA		NA		<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
Naphthalene	0.16	a	2.1	a	-	-	-	-	-	-	-	-	-
Nitrobenzene	NA		NA		<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
N-Nitrosodimethylamine	NA		NA		<0.545	<0.335	<0.516	<0.244	<0.479	<0.402	<0.423	<0.414	<0.216
Pentachlorophenol	NA		0.017	b	<2.73	<1.68	<2.59	<1.22	<2.40	<2.01	<2.12	<2.08	<1.08
Phenanthrene	0.24	a	1.5	a	-	-	-	-	-	-	-	-	-
Phenol	NA		0.13	b	<0.545	<0.335	<0.516	0.307	<0.479	<0.402	<0.423	<0.414	<0.216
Pyrene	0.665	a	2.6	a	-	-	-	-	-	-	-	-	-

Wynn Resort Casino
Everett, Massachusetts

Notes:

1. Results are presented in mg/kg unless otherwise noted.
2. "<" indicates that an analyte was tested for but not detected above the Method Reporting Limit (MRL). "-" indicates that an analyte was not tested for NA indicates that a benchmark value is not available.
3. Samples are designated as "Shallow" if any portion of the sample depth occurs within the uppermost 2 feet of sediment. All other samples are designated as "Deep."
4. Group designations are as follows: ON = On-Site, OFF-W = Off-Site West, OFF-E = Off-Site East, and LC = Local Conditions.
5. Marine sediment benchmarks are from the following sources:
   a. Effects Range - Low (ERL) and Effects Range - Median (ERM) Marine Sediment screening values from Long, et al., 1995.
   b. ERL and ERM equivalent Marine Sediment benchmark values from http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf
6. Bolded values exceed the conservative ERL screening value.
7. Shaded values exceed the ERM benchmark value.
8. The LC-# series of samples are Local Conditions samples

Table 3D
SEDIMENT POLYCYCLIC AROMATIC HYDROCARBONS AND EXTRACTABLE PETROLEUM HYDROCARBON RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks				GZ-102 6-8ft 08/01/2013 6-8 Deep ON	GZ-104 2-4ft 08/06/2013 2-4 Deep ON	GZ-104T 0-0_5ft 08/06/2013 0-0.5 Shallow ON	GZ-105 4-6ft 08/01/2013 4-6 Deep ON	GZ-108 2-4ft 08/01/2013 2-4 Deep ON	GZ-108T 0-0_5ft 08/06/2013 0-0.5 Shallow ON	GZ-109 0_5-2_5ft 08/02/2013 0.5-2.5 Shallow ON	GZ-111 7-8ft 08/01/2013 7-8 Deep ON	GZ-113 2-4ft 08/01/2013 2-4 Deep ON	GZ-113T 0-0_5ft 08/06/2013 0-0.5 Shallow ON	GZ-114 2-5ft 08/01/2013 2-5 Deep ON
	ERLs		ERMs												
Polycyclic Aromotic Hydrocarbons (PAHs)															
2-Methylnaphthalene	0.07	a	0.67	a	<0.022	<0.115	<0.188	<0.090	<0.028	<0.174	**0.114**	<0.035	<0.092	<0.079	**0.114**
Acenaphthene	0.016	a	0.5	a	<0.022	<0.115	<0.188	<0.090	<0.028	<0.174	**0.12**	<0.035	<0.092	<0.079	**0.06**
Acenaphthylene	0.044	a	0.64	a	<0.022	**0.119**	**0.324**	**0.147**	**0.054**	<0.174	**0.204**	<0.035	**0.18**	<0.079	**0.079**
Anthracene	0.085	a	1.1	a	<0.022	**0.156**	**0.467**	**0.144**	0.05	<0.174	**0.741**	0.042	**0.268**	<0.079	**0.144**
Benzo(a)anthracene	0.261	a	1.6	a	<0.022	**0.326**	**1.59**	**0.291**	0.115	0.209	**1.12**	0.062	**0.577**	0.117	0.142
Benzo(a)pyrene	0.43	a	1.6	a	<0.022	0.368	**1.83**	0.349	0.16	0.306	**0.563**	0.051	**0.599**	0.149	0.119
Benzo(b)fluoranthene	NA		1.8	b	0.036	0.506	2.55	0.478	0.216	0.439	1.35	0.065	0.875	0.206	0.236
Benzo(g,h,i)perylene	NA		NA		0.036	0.303	1.38	0.288	0.157	0.272	0.3	0.038	0.515	0.13	0.118
Benzo(k)fluoranthene	NA		NA		0.027	0.175	0.715	0.144	0.082	<0.174	1.42	<0.035	0.309	<0.079	0.085
Chrysene	0.384	a	2.8	a	0.024	**0.414**	**1.97**	0.349	0.165	0.32	**1.18**	0.067	**0.68**	0.158	0.167
Dibenzo(a,h)Anthracene	0.063	a	0.26	a	<0.022	<0.115	**0.361**	<0.090	0.038	<0.174	<0.102	<0.035	**0.154**	<0.079	<0.035
Fluoranthene	0.6	a	5.1	a	0.03	**0.726**	**3.61**	0.507	0.234	0.425	<0.102	0.114	**0.673**	0.203	0.342
Fluorene	0.019	a	0.54	a	<0.022	<0.115	<0.188	<0.090	<0.028	<0.174	**0.163**	<0.035	<0.092	<0.079	**0.113**
Hexachlorobenzene	NA		NA		-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)Pyrene	NA		NA		0.036	0.317	1.54	0.288	0.162	0.286	0.369	0.041	0.585	0.139	0.124
Naphthalene	0.16	a	2.1	a	<0.022	<0.115	**0.226**	<0.090	0.046	<0.174	**0.496**	0.091	<0.092	<0.079	**0.472**
Phenanthrene	0.24	a	1.5	a	0.03	**0.368**	**2.14**	0.237	0.095	0.174	**0.733**	0.122	**0.408**	0.108	**0.625**
Pyrene	0.665	a	2.6	a	0.033	**0.749**	**3.28**	0.644	0.254	0.446	**2.41**	0.125	**1.01**	0.237	0.44
Total PAHs	4.022	a	44.792	a	0.252	**4.527**	**21.983**	3.866	1.828	2.877	**11.283**	0.818	**6.833**	1.447	3.38
Extractable Petroleum Hyrdocorbons															
C11-C22 Aromatics1,2	NA		NA		1540	988	472	947	445	<104	2480	<108	2630	175	1640
C11-C22 Unadjusted Aromatics1	NA		NA		1540	993	488	947	445	<104	2480	<108	2630	175	1640
C19-C36 Aliphatics1	NA		NA		405	1170	688	944	937	189	1570	<108	305	329	321
C9-C18 Aliphatics1	NA		NA		143	228	114	169	142	<104	262	<108	<48.2	51.4	442
Total EPH	NA		NA		2088	2386	1274	2060	1524	189	4312	<108	2935	555.4	2403

Table 3D
SEDIMENT POLYCYCLIC AROMATIC HYDROCARBONS AND EXTRACTABLE PETROLEUM HYDROCARBON RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Marine Sediment Benchmarks		GZ-114T 0-0_5ft	GZ-116 0_5-2ft	GZ-116 2-4ft	GZ-116 6-8ft	GZ-116T 0-0_5ft	GZ-119 2-4ft	GZ-119T 0-0_5ft	GZ-122 0_5-2ft	GZ-122 2-4ft	GZ-122T 0-0_5ft	GZ-126 0_5-2ft
Date Sampled			08/06/2013	08/02/2013	08/02/2013	08/02/2013	08/06/2013	08/01/2013	08/01/2013	08/02/2013	08/02/2013	08/06/2013	08/05/2013
Depth (ft)			0-0.5	0.5-2	2-4	6-8	0-0.5	2-4	0-0.5	0.5-2	2-4	0-0.5	0.5-2
Type			Shallow	Shallow	Deep	Deep	Shallow	Deep	Shallow	Shallow	Deep	Shallow	Shallow
Group	ERLs	ERMs	ON	ON	ON	ON	ON	ON	ON	OFF-W	OFF-W	OFF-W	OFF-W
Analyte													
Polycyclic Aromatic Hydrocarbons (PAHs)													
2-Methylnaphthalene	0.07 a	0.67 a	<0.141	<0.057	**0.083**	<0.013	<0.074	**0.218**	<0.133	<0.013	<0.012	<0.059	<0.010
Acenaphthene	0.016 a	0.5 a	<0.141	<0.057	<0.067	<0.013	<0.074	**0.07**	<0.133	<0.013	<0.012	<0.059	<0.010
Acenaphthylene	0.044 a	0.64 a	<0.141	<0.057	**0.07**	<0.013	<0.074	**0.067**	<0.133	<0.013	<0.012	**0.07**	0.015
Anthracene	0.085 a	1.1 a	<0.141	**0.094**	**0.091**	<0.013	<0.074	**0.154**	<0.133	<0.013	<0.012	**0.176**	**0.115**
Benzo(a)anthracene	0.261 a	1.6 a	0.215	0.172	0.153	<0.013	0.198	0.151	0.144	0.024	<0.012	**0.418**	**0.265**
Benzo(a)pyrene	0.43 a	1.6 a	0.323	0.165	0.126	<0.013	0.18	0.121	0.191	0.02	<0.012	0.415	0.193
Benzo(b)fluoranthene	NA	1.8 b	0.458	0.293	0.207	<0.013	0.227	0.252	0.266	0.022	0.014	0.518	0.209
Benzo(g,h,i)perylene	NA	NA	0.255	0.144	0.089	<0.013	0.115	0.098	0.175	0.015	<0.012	0.279	0.091
Benzo(k)fluoranthene	NA	NA	0.147	0.085	0.078	<0.013	0.074	0.113	<0.133	<0.013	<0.012	0.185	0.074
Chrysene	0.384 a	2.8 a	0.323	0.234	0.175	<0.013	0.221	0.182	0.197	0.022	<0.012	**0.422**	0.209
Dibenzo(a,h)Anthracene	0.063 a	0.26 a	<0.141	<0.057	<0.067	<0.013	<0.074	<0.041	<0.133	<0.013	<0.012	**0.08**	0.034
Fluoranthene	0.6 a	5.1 a	0.43	0.355	0.18	<0.013	0.295	0.364	0.266	0.041	0.014	**0.631**	0.271
Fluorene	0.019 a	0.54 a	<0.141	<0.057	<0.067	<0.013	<0.074	**0.157**	<0.133	<0.013	<0.012	<0.059	0.012
Hexachlorobenzene	NA	NA	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)Pyrene	NA	NA	0.277	0.154	0.118	<0.013	0.121	0.111	0.191	0.016	<0.012	0.317	0.105
Naphthalene	0.16 a	2.1 a	<0.141	0.119	**0.247**	<0.013	<0.074	**0.808**	<0.133	<0.013	<0.012	0.073	0.014
Phenanthrene	0.24 a	1.5 a	0.181	0.167	**0.315**	<0.013	0.189	**0.767**	<0.133	0.025	<0.012	**0.296**	0.067
Pyrene	0.665 a	2.6 a	0.464	0.383	0.242	<0.013	0.407	0.446	0.314	0.039	0.016	0.617	0.341
Total PAHs	4.022 a	44.792 a	3.073	2.365	2.174	<0.013	2.027	**4.079**	1.744	0.224	0.044	**4.497**	2.015
Extractable Petroleum Hyrdocarbons													
C11-C22 Aromatics1,2	NA	NA	111	674	141	<38.7	60.2	949	155	59.5	<35.9	<34.7	47.7
C11-C22 Unadjusted Aromatics1	NA	NA	111	674	141	<38.7	60.2	949	155	59.5	<35.9	<34.7	49.7
C19-C36 Aliphatics1	NA	NA	137	154	121	<38.7	85	194	99.9	119	<35.9	<34.7	<30.5
C9-C18 Aliphatics1	NA	NA	<84.3	<102	<104	<38.7	<43.4	218	<80.3	<38.2	<35.9	<34.7	<30.5
Total EPH	NA	NA	248	828	262	<38.7	145.2	1361	254.9	178.5	<35.9	<34.7	47.7

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Marine Sediment Benchmarks		GZ-126 2-4ft	GZ-126T 0-0_5ft	GZ-134 2-3ft	GZ-134 6-8ft	GZ-134T 0-0_5ft	GZ-136 0_5-2ft	GZ-137 2-4ft	GZ-137T 0-0_5ft	GZ-140A 2-3ft	GZ-201 0ft-0_5ft	GZ-201 4ft-5ft
Date Sampled			08/05/2013	08/06/2013	08/02/2013	08/02/2013	08/06/2013	08/05/2013	08/05/2013	08/06/2013	08/05/2013		
Depth (ft)			2-4	0-0.5	2-3	6-8	0-0.5	0.5-2	2-4	0-0.5	2-3	0-0.5	4-5
Type			Deep	Shallow	Shallow	Deep	Shallow	Shallow	Deep	Shallow	Shallow	Shallow	Deep
Group	ERLs	ERMs	OFF-W	OFF-W	ON	ON	ON	OFF-W	OFF-W	OFF-W	OFF-W	OFF-E	OFF-E
Analyte													
Polycyclic Aromatic Hydrocorbons (PAHs)													
2-Methylnaphthalene	0.07 a	0.67 a	<0.011	<0.064	**0.571**	**6.35**	**0.155**	**0.121**	**0.107**	**0.171**	<0.079	<0.045	0.06
Acenaphthene	0.016 a	0.5 a	<0.011	<0.064	**0.505**	**3.34**	<0.129	**0.165**	**0.19**	**0.131**	<0.079	**0.021**	<0.022
Acenaphthylene	0.044 a	0.64 a	<0.011	**0.084**	**0.319**	**1.89**	**0.646**	**0.317**	**0.258**	**0.496**	**0.463**	**0.101**	**0.078**
Anthracene	0.085 a	1.1 a	<0.011	**0.298**	**1.09**	**3.83**	**0.677**	**0.613**	**0.703**	**0.625**	**0.513**	**0.13**	**0.088**
Benzo(a)anthracene	0.261 a	1.6 a	<0.011	**0.769**	**0.77**	**3.25**	**1.28**	**0.64**	**0.906**	**1.15**	**0.973**	**0.276**	0.154
Benzo(a)pyrene	0.43 a	1.6 a	<0.011	**0.738**	**0.806**	**2.25**	**2.04**	**0.87**	**0.982**	**1.5**	**1.06**	0.389	0.197
Benzo(b)fluoranthene	NA	1.8 b	<0.011	0.84	1.76	3.33	3.2	1.3	1.18	2.16	1.24	0.594	0.276
Benzo(g,h,i)perylene	NA	NA	<0.011	0.443	1.12	1.62	1.69	0.543	0.552	1.03	0.558	0.187	0.091
Benzo(k)fluoranthene	NA	NA	<0.011	0.29	1.07	1.4	0.873	0.412	0.437	0.858	0.412	0.19	0.103
Chrysene	0.384 a	2.8 a	<0.011	**0.67**	**1.26**	**3.09**	**1.76**	**1.12**	**0.946**	**1.47**	**1.12**	**0.401**	0.183
Dibenzo(a,h)Anthracene	0.063 a	0.26 a	<0.011	**0.137**	**0.325**	**0.601**	**0.46**	**0.17**	**0.181**	**0.299**	**0.19**	0.055	0.029
Fluoranthene	0.6 a	5.1 a	<0.011	**0.975**	**1.9**	**4.93**	**2.07**	**1.25**	**1.52**	**1.88**	**1.13**	**0.684**	0.303
Fluorene	0.019 a	0.54 a	<0.011	<0.064	**0.896**	**3.36**	**0.176**	**0.218**	**0.187**	**0.197**	**0.082**	**0.033**	**0.029**
Hexachlorobenzene	NA	NA	-	-	-	-	-	-	-	-	-	<0.018	<0.022
Indeno(1,2,3-cd)Pyrene	NA	NA	<0.011	0.532	1.19	1.79	1.89	0.628	0.641	1.16	0.634	0.222	0.102
Naphthalene	0.16 a	2.1 a	<0.011	<0.064	**7.91**	**15.2**	**0.692**	**0.514**	**0.394**	**0.825**	**0.285**	0.125	0.112
Phenanthrene	0.24 a	1.5 a	<0.011	**0.341**	**3.63**	**9.55**	**1.11**	**1.11**	**1.19**	**1.21**	**0.295**	0.23	0.124
Pyrene	0.665 a	2.6 a	<0.011	**1.08**	**2.48**	**6.84**	**2.91**	**1.96**	**2.02**	**2.36**	**1.76**	0.553	0.332
Total PAHs	4.022 a	44.792 a	<0.011	**7.197**	**27.602**	**72.621**	**21.629**	**11.951**	**12.394**	**17.522**	**10.715**	**4.191**	2.261
Extractable Petroleum Hyrdocarbons													
C11-C22 Aromatics1,2	NA	NA	<32.2	68	2790	2530	355	262	66.9	226	173	49	-
C11-C22 Unadjusted Aromatics1	NA	NA	<32.2	80.8	2800	2590	363	269	66.9	234	181	49	-
C19-C36 Aliphatics1	NA	NA	<32.2	49.9	495	898	783	270	61.2	398	151	141	-
C9-C18 Aliphatics1	NA	NA	<32.2	<37.9	524	612	92.5	71.9	<31.3	54.1	54.6	<44.9	-
Total EPH	NA	NA	<32.2	117.9	3809	4040	1230.5	603.9	128.1	678.1	378.6	190	-

SEDIMENT POLYCYCLIC AROMATIC HYDROCARBONS AND EXTRACTABLE PETROLEUM HYDROCARBON RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID Date Sampled Depth (ft) Type Group Analyte	Marine Sediment Benchmarks				GZ-202 0ft-0_5ft 03/24/2015 0-0.5 Shallow OFF-E	GZ-202 2ft-4ft 3/24/2015 2-4 Deep OFF-E	GZ-203 0ft-0_5ft 03/24/2015 0-0.5 Shallow OFF-E	GZ-203 4ft-6ft 03/24/2015 4-6 Deep OFF-E	GZ-204 0ft-0_5ft 03/24/2015 0.0.5 Shallow OFF-E	GZ-204 2ft-4ft 03/24/2015 2-4 Deep OFF-E	GZ-204 6ft-8ft 03/24/2015 6-8 Deep OFF-E	GZ-205 0ft-0_5ft 3/25/2015 0-0.5 Shallow OFF-E	GZ-205 4ft-6ft 3/25/2015 2-6 Deep OFF-E	GZ-205 6ft-8ft 3/25/2015 6-8 Deep OFF-E	GZ-206 0ft-0_5ft 3/25/2015 0-0.5 Shallow ON
Polycyclic Aromatic Hydrocarbons (PAHs)															
2-Methylnaphthalene	0.07	a	0.67	a	<0.050	<0.020	<0.034	0.022	<0.035	**1.54**	**0.083**	<0.032	**0.43**	<0.017	<0.040
Acenaphthene	0.016	a	0.5	a	**0.049**	**0.027**	**0.03**	**0.021**	**0.029**	**0.599**	**0.135**	<0.032	**0.447**	<0.017	**0.04**
Acenaphthylene	0.044	a	0.64	a	**0.19**	**0.052**	**0.103**	<0.020	**0.071**	**0.519**	**0.087**	**0.131**	**0.509**	0.018	**0.413**
Anthracene	0.085	a	1.1	a	**0.187**	0.054	**0.111**	<0.020	**0.104**	**1.03**	**0.309**	**0.143**	**1.07**	0.034	**0.974**
Benzo(a)anthracene	0.261	a	1.6	a	**0.521**	0.075	**0.321**	<0.020	**0.291**	**0.864**	0.169	**0.421**	**0.975**	0.052	**0.948**
Benzo(a)pyrene	0.43	a	1.6	a	**0.69**	0.103	**0.451**	<0.020	0.35	**0.868**	0.173	**0.552**	**0.904**	0.048	**1.3**
Benzo(b)fluoranthene	NA		1.8	b	1.07	0.121	0.655	<0.020	0.517	1.43	0.242	0.785	1.16	0.054	1.46
Benzo(g,h,i)perylene	NA		NA		0.581	<0.020	0.407	<0.020	0.273	0.568	0.106	0.347	0.42	0.029	0.818
Benzo(k)fluoranthene	NA		NA		0.337	0.052	0.159	<0.020	0.137	0.459	0.064	0.252	0.392	<0.017	0.44
Chrysene	0.384	a	2.8	a	**0.693**	0.101	**0.479**	<0.020	0.354	**1.14**	0.234	**0.526**	**1.12**	0.057	**1.14**
Dibenzo(a,h)Anthracene	0.063	a	0.26	a	**0.146**	<0.020	**0.096**	<0.020	**0.068**	<0.440	0.032	**0.099**	**0.121**	<0.017	**0.173**
Fluoranthene	0.6	a	5.1	a	**1.07**	0.177	**0.682**	<0.020	**0.612**	**2.41**	0.455	**0.813**	**2.3**	0.095	**2.06**
Fluorene	0.019	a	0.54	a	**0.073**	**0.027**	**0.04**	<0.020	**0.038**	**1.06**	**0.16**	**0.043**	**0.665**	<0.017	**0.088**
Hexachlorobenzene	NA		NA		<0.020	<0.008	<0.014	<0.008	<0.014	<0.176	<0.008	<0.013	<0.030	<0.007	<0.016
Indeno(1,2,3-cd)Pyrene	NA		NA		0.628	<0.020	0.416	<0.020	0.298	0.581	0.114	0.407	0.459	0.031	0.846
Naphthalene	0.16	a	2.1	a	**0.223**	0.126	0.131	**0.202**	0.094	**14.8**	**1.17**	0.126	**3.52**	0.025	0.149
Phenanthrene	0.24	a	1.5	a	**0.442**	0.088	**0.293**	<0.020	**0.331**	**2.81**	**0.636**	**0.302**	**2.26**	0.026	**0.542**
Pyrene	0.665	a	2.6	a	**1.09**	0.231	**0.705**	<0.020	0.636	**2.56**	0.56	**0.847**	**2.58**	0.106	**3.2**
Total PAHs	4.022	a	44.792	a	**7.99**	1.234	**5.079**	0.245	**4.203**	**33.238**	**4.729**	**5.794**	**19.332**	0.575	**14.591**
Extractable Petroleum Hyrdocarbons															
C11-C22 Aromatics1,2	NA		NA		97.3	-	54.6	-	63	2280	-	43.2	-	-	<40.4
C11-C22 Unadjusted Aromatics1	NA		NA		103	-	63.1	-	66.2	2280	-	43.2	-	-	<40.4
C19-C36 Aliphatics1	NA		NA		256	-	106	-	120	391	-	71.8	-	-	92.8
C9-C18 Aliphatics1	NA		NA		<49.8	-	<34.7	-	<34.7	574	-	<31.6	-	-	<40.4
Total EPH	NA		NA		353.3	-	160.6	-	183	3245	-	115	-	-	92.8

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Marine Sediment Benchmarks		GZ-206 4ft-6ft	GZ-207 0ft-0_5ft	GZ-207 4ft-6ft	GZ-207 6ft-7_5ft	GZ-208 0ft-0_5ft	GZ-208 4ft-6ft	GZ-209 0ft-0_5ft	GZ-209 2ft-4ft	GZ-209 6ft-8ft	GZ-210 0_5ft-2ft	GZ-210 0ft-0_5ft
Date Sampled			3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/30/2015	3/30/2015
Depth (ft)			4-6	0-0.5	4-6	6-7	0-0.5	4-6	0-0.5	2-4	6-8	0.5-2	0-0.5
Type			Deep	Shallow	Deep	Deep	Shallow	Deep	Shallow	Deep	Deep	Shallow	Shallow
Group	ERLs	ERMs	ON	ON	ON	ON	ON	ON	ON	ON	ON	OFF-E	OFF-E
Analyte													
Polycyclic Aromatic Hydrocarbons (PAHs)													
2-Methylnaphthalene	0.07 a	0.67 a	0.055	<0.039	**0.38**	<0.020	<0.038	**1.02**	<0.041	**0.253**	<0.017	<0.019	<0.017
Acenaphthene	0.016 a	0.5 a	**0.43**	**0.033**	**0.201**	<0.020	**0.03**	**1.1**	**0.021**	**0.158**	<0.017	<0.019	<0.017
Acenaphthylene	0.044 a	0.64 a	**0.122**	**0.183**	**0.183**	<0.020	**0.165**	**1.04**	**0.114**	**0.192**	<0.017	<0.019	0.018
Anthracene	0.085 a	1.1 a	**0.523**	**0.201**	**0.369**	<0.020	**0.169**	**1.52**	**0.109**	**0.164**	<0.017	<0.019	0.047
Benzo(a)anthracene	0.261 a	1.6 a	**0.316**	**0.47**	**0.316**	<0.020	**0.474**	**1.55**	**0.328**	<0.270	<0.017	<0.019	0.099
Benzo(a)pyrene	0.43 a	1.6 a	0.26	**0.708**	**0.542**	<0.020	**0.683**	**2.24**	**0.481**	<0.270	<0.017	<0.019	0.114
Benzo(b)fluoranthene	NA	1.8 b	0.246	1.14	0.748	<0.020	1.02	2.49	0.752	0.278	<0.017	<0.019	0.137
Benzo(g,h,i)perylene	NA	NA	0.103	0.567	0.185	<0.020	0.628	1.46	0.431	<0.270	<0.017	<0.019	0.081
Benzo(k)fluoranthene	NA	NA	0.055	0.257	0.274	<0.020	0.271	0.745	0.176	<0.270	<0.017	<0.019	0.047
Chrysene	0.384 a	2.8 a	0.315	**0.699**	**0.424**	<0.020	**0.647**	**1.89**	**0.482**	<0.270	<0.017	<0.019	0.108
Dibenzo(a,h)Anthracene	0.063 a	0.26 a	0.04	**0.146**	<0.065	<0.020	**0.152**	**0.544**	**0.099**	<0.108	<0.017	<0.019	0.018
Fluoranthene	0.6 a	5.1 a	0.55	**1**	**0.814**	<0.020	**0.977**	**2.19**	**0.697**	0.526	<0.017	<0.019	0.176
Fluorene	0.019 a	0.54 a	**0.35**	**0.056**	**0.335**	<0.020	**0.052**	**1.35**	**0.034**	**0.187**	<0.007	<0.019	<0.017
Hexachlorobenzene	NA	NA	<0.273	<0.516	<0.013	<0.008	<0.520	<0.01	<0.016	<0.027	<0.007	<0.019	<0.017
Indeno(1,2,3-cd)Pyrene	NA	NA	0.116	0.632	0.195	<0.020	0.677	1.59	0.443	<0.270	<0.017	<0.019	0.085
Naphthalene	0.16 a	2.1 a	**0.178**	**0.282**	**2.65**	<0.020	0.157	**3.32**	0.093	**1.15**	<0.017	<0.019	<0.017
Phenanthrene	0.24 a	1.5 a	**1.37**	**0.404**	**1.08**	<0.020	**0.378**	**5.13**	**0.259**	**0.716**	<0.017	<0.019	0.069
Pyrene	0.665 a	2.6 a	**0.754**	**1.09**	**1.06**	<0.020	**1.09**	**4.65**	**0.733**	0.644	<0.017	0.019	0.176
Total PAHs	4.022 a	44.792 a	**5.783**	**7.868**	**9.756**	<0.020	**7.57**	**33.829**	**5.252**	**4.268**	<0.017	0.019	1.175
Extractable Petroleum Hyrdocarbons													
C11-C22 Aromatics1,2	NA	NA	598	39.3	-	-	52.9	-	43.8	787	-	-	<16.8
C11-C22 Unadjusted Aromatics1	NA	NA	604	39.3	-	-	52.9	-	43.8	787	-	-	<16.8
C19-C36 Aliphatics1	NA	NA	202	98.8	-	-	125	-	129	221	-	-	<16.8
C9-C18 Aliphatics1	NA	NA	165	<39.0	-	-	<38.5	-	<43.1	335	-	-	<16.8
Total EPH	NA	NA	965	138.1	-	-	177.9	-	172.8	1343	-	-	<16.8

Wynn Resort Casino
Everett, Massachusetts

Sample ID / Date Sampled / Depth (ft) / Type / Group / Analyte	Marine Sediment Benchmarks ERLs		Marine Sediment Benchmarks ERMs		GZ-210 2ft-4ft 3/30/2015 2-4 Deep OFF-E	GZ-211 0ft-0_5ft 3/30/2015 0-0.5 Shallow OFF-E	GZ-211 4ft-6ft 3/30/2015 4-6 Deep OFF-E	GZ-212 0_5ft-2ft 03/24/2015 0.5-2 Shallow OFF-E	GZ-212 0ft-0_5ft 03/24/2015 0-0.5 Shallow OFF-E	GZ-213 0ft-0_5ft 3/25/2015 0-0.5 Shallow ON	GZ-213 4ft-6ft 3/25/2015 4-6 Deep ON	GZ-214 0ft-0_5ft 3/30/2015 0-0.5 Shallow ON	GZ-214 2ft-4ft 3/30/2015 2-4 Deep ON	GZ-214 4ft-6ft 4-6 Deep ON	GZ-214 6ft-8ft 3/30/2015 6-8 Deep ON
Polycyclic Aromatic Hydrocorbons (PAHs)															
2-Methylnaphthalene	0.07	a	0.67	a	<0.018	<0.016	<0.019	<0.018	<0.017	0.028	<0.016	0.049	<0.019	<0.018	<0.017
Acenaphthene	0.016	a	0.5	a	<0.018	<0.016	<0.019	<0.018	**0.025**	**0.024**	<0.016	**0.194**	<0.019	<0.018	<0.017
Acenaphthylene	0.044	a	0.64	a	<0.018	0.027	<0.019	0.019	0.024	**0.163**	<0.016	**0.14**	<0.019	<0.018	<0.017
Anthracene	0.085	a	1.1	a	<0.018	0.085	<0.019	**0.094**	0.075	**0.171**	<0.016	**0.346**	<0.019	<0.018	<0.017
Benzo(a)anthracene	0.261	a	1.6	a	<0.018	0.233	<0.019	**0.302**	0.151	**0.314**	<0.016	**0.677**	<0.019	<0.018	<0.017
Benzo(a)pyrene	0.43	a	1.6	a	<0.018	0.243	<0.019	0.273	0.161	0.425	<0.016	**0.804**	<0.019	<0.018	<0.017
Benzo(b)fluoranthene	NA		1.8	b	<0.018	0.294	<0.019	0.314	0.194	0.569	<0.016	1.02	<0.019	<0.018	<0.017
Benzo(g,h,i)perylene	NA		NA		<0.018	0.164	<0.019	0.145	0.111	0.212	<0.016	0.402	<0.019	<0.018	<0.017
Benzo(k)fluoranthene	NA		NA		<0.018	0.084	<0.019	0.09	0.065	0.182	<0.016	0.322	<0.019	<0.018	<0.017
Chrysene	0.384	a	2.8	a	<0.018	0.231	<0.019	0.296	0.16	0.362	<0.016	**0.722**	<0.019	<0.018	<0.017
Dibenzo(a,h)Anthracene	0.063	a	0.26	a	<0.018	0.038	<0.019	0.044	0.027	**0.07**	<0.016	**0.131**	<0.019	<0.018	<0.017
Fluoranthene	0.6	a	5.1	a	<0.018	0.403	<0.019	0.454	0.31	0.525	<0.016	**1.33**	<0.019	<0.018	<0.017
Fluorene	0.019	a	0.54	a	<0.018	**0.02**	<0.019	<0.018	**0.024**	**0.052**	<0.016	**0.143**	<0.019	<0.018	<0.017
Hexachlorobenzene	NA		NA		<0.018	<0.016	<0.019	<0.007	<0.007	<0.009	<0.006	<0.024	<0.019	<0.018	<0.017
Indeno(1,2,3-cd)Pyrene	NA		NA		<0.018	0.174	<0.019	0.167	0.119	0.266	<0.016	0.517	<0.019	<0.018	<0.017
Naphthalene	0.16	a	2.1	a	<0.018	0.026	<0.019	<0.018	0.024	0.073	<0.016	**0.2**	<0.019	<0.018	<0.017
Phenanthrene	0.24	a	1.5	a	<0.018	0.156	<0.019	0.115	0.184	**0.262**	<0.016	**0.812**	<0.019	<0.018	<0.017
Pyrene	0.665	a	2.6	a	<0.018	0.382	<0.019	0.45	0.294	**0.751**	<0.016	**1.21**	<0.019	<0.018	<0.017
Total PAHs	4.022	a	44.792	a	<0.018	2.56	<0.019	2.763	1.948	**4.449**	<0.016	**9.019**	<0.019	<0.018	<0.017
Extroctable Petroleum Hyrdocorbons															
C11-C22 Aromatics1,2	NA		NA		-	<16.2	-	-	<16.8	57.6	-	101	<18.9	<18.0	-
C11-C22 Unadjusted Aromatics1	NA		NA		-	<16.2	-	-	<16.8	61.3	-	103	<18.9	<18.0	-
C19-C36 Aliphatics1	NA		NA		-	<16.2	-	-	18.2	78.6	-	117	<18.9	<18.0	-
C9-C18 Aliphatics1	NA		NA		-	<16.2	-	-	<16.8	<21.6	-	26.1	<18.9	<18.0	-
Total EPH	NA		NA		-	<16.2	-	-	18.2	136.2	-	244.1	<18.9	<18.0	-

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Marine Sediment Benchmarks		GZ-215 0ft-0_5ft	GZ-215 4ft-6ft	GZ-216 0ft-0_5ft	GZ-216 2ft-4ft	GZ-216 4ft-6ft	GZ-217 0ft-0_5ft	GZ-217 6ft-8ft	GZ-218 0_5ft-2ft	GZ-218 0ft-0_5ft	GZ-218 4ft-6ft	GZ-219 0ft-0_5ft
Date Sampled			03/24/2015		03/24/2015	03/24/2015	03/24/2015	03/24/2015	03/24/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015
Depth (ft)			0-0.5	4-6	0-0.5	2-4	4-6	0-0.5	6-8	0.5-2	0-0.5	4-6	0-0.5
Type			Shallow	Deep	Shallow	Deep	Deep	Shallow	Deep	Shallow	Shallow	Deep	Shallow
Group	ERLs	ERMs	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Analyte													
Polycyclic Aromatic Hydrocarbons (PAHs)													
2-Methylnaphthalene	0.07 a	0.67 a	0.03	<0.015	0.049	<0.020	<0.018	**0.094**	<0.019	<0.109	0.033	<0.017	0.031
Acenaphthene	0.016 a	0.5 a	**0.039**	<0.015	**0.039**	**0.029**	<0.018	**0.079**	<0.019	**0.03**	**0.032**	<0.017	**0.027**
Acenaphthylene	0.044 a	0.64 a	**0.081**	<0.015	**0.149**	0.021	<0.018	**0.368**	<0.019	**0.328**	**0.212**	<0.017	**0.127**
Anthracene	0.085 a	1.1 a	**0.161**	<0.015	**0.24**	**0.1**	<0.018	**0.556**	<0.019	**0.336**	**0.234**	<0.017	**0.175**
Benzo(a)anthracene	0.261 a	1.6 a	**0.327**	<0.015	**0.442**	**0.327**	<0.018	**0.808**	<0.019	**0.718**	**0.527**	<0.017	**0.355**
Benzo(a)pyrene	0.43 a	1.6 a	0.382	<0.015	**0.497**	0.279	<0.018	**0.818**	<0.019	**0.674**	**0.735**	<0.017	**0.459**
Benzo(b)fluoranthene	NA	1.8 b	0.512	<0.015	0.594	0.315	<0.018	0.985	<0.019	0.804	1.2	<0.017	0.719
Benzo(g,h,i)perylene	NA	NA	0.217	<0.015	0.419	0.139	<0.018	0.472	<0.019	0.282	0.404	<0.017	0.249
Benzo(k)fluoranthene	NA	NA	0.145	<0.015	0.205	0.113	<0.018	0.334	<0.019	0.216	0.293	<0.017	0.167
Chrysene	0.384 a	2.8 a	0.371	<0.015	**0.587**	0.305	0.018	**1.03**	<0.019	**0.882**	**0.713**	<0.017	**0.491**
Dibenzo(a,h)Anthracene	0.063 a	0.26 a	0.06	<0.015	**0.104**	0.045	<0.018	**0.154**	<0.019	<0.109	**0.127**	<0.017	**0.072**
Fluoranthene	0.6 a	5.1 a	**0.695**	<0.015	0.59	0.47	0.031	**0.924**	<0.019	**1.24**	**0.991**	<0.017	**0.624**
Fluorene	0.019 a	0.54 a	**0.053**	<0.015	**0.104**	**0.026**	<0.018	**0.18**	<0.019	**0.081**	**0.054**	<0.017	**0.046**
Hexachlorobenzene	NA	NA	<0.021	<0.015	<0.018	<0.008	<0.007	<0.009	<0.008	<0.022	<0.010	<0.007	<0.009
Indeno(1,2,3-cd)Pyrene	NA	NA	0.265	<0.015	0.435	0.151	<0.018	0.547	<0.019	0.33	0.493	<0.017	0.295
Naphthalene	0.16 a	2.1 a	0.13	<0.015	**0.184**	0.021	<0.018	**0.25**	<0.019	<0.109	0.1	<0.017	0.082
Phenanthrene	0.24 a	1.5 a	**0.445**	<0.015	**0.248**	0.11	<0.018	**0.762**	<0.019	**0.248**	**0.345**	<0.017	0.227
Pyrene	0.665 a	2.6 a	0.654	<0.015	**1.07**	0.47	0.031	**1.7**	<0.019	**1.49**	**1.12**	0.018	**0.849**
Total PAHs	4.022 a	44.792 a	**4.567**	<0.015	**5.956**	2.921	0.08	**10.061**	<0.019	**7.659**	**7.613**	0.018	**4.995**
Extractable Petraleum Hyrdocarbons													
C11-C22 Aromatics1,2	NA	NA	37.6	-	199	<20.3	-	217	-	38.8	57.2	-	63
C11-C22 Unadjusted Aromatics1	NA	NA	37.6	-	204	20.6	-	227	-	42.7	62	-	68.7
C19-C36 Aliphatics1	NA	NA	64.9	-	124	<20.3	-	188	-	43.3	97.5	-	108
C9-C18 Aliphatics1	NA	NA	<21.6	-	29.4	<20.3	-	59	-	<21.6	<25.2	-	<23.1
Total EPH	NA	NA	102.5	-	352.4	<20.3	-	464	-	82.1	154.7	-	171

Table 3D
SEDIMENT POLYCYCLIC AROMATIC HYDROCARBONS AND EXTRACTABLE PETROLEUM HYDROCARBON RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID / Date Sampled / Depth (ft) / Type / Group / Analyte	Marine Sediment Benchmarks ERLs	Marine Sediment Benchmarks ERMs	GZ-219 4ft-6ft 3/25/2015 4-6 Deep ON	GZ-220 0_5ft-2ft 3/30/2015 0.5-2 Shallow ON	GZ-220 0ft-0_5ft 3/30/2015 0-0.5 Shallow ON	GZ-220 2ft-4ft 3/30/2015 2-4 Deep ON	GZ-221 0ft-0_5ft 3/30/2015 0-0.5 Shallow ON	GZ-221 4ft-6ft 3/30/2015 4-6 Deep ON	GZ-222 0_5ft-2ft 3/30/2015 0.5-2 Shallow ON	GZ-222 0ft-0_5ft 3/30/2015 0-0.5 Shallow ON	GZ-222 2ft-4ft 3/30/2015 2-4 Deep ON	GZ-223 0ft-0_5ft 3/30/2015 0-0.5 Shallow ON	GZ-223 2ft-4ft 3/30/2015 2-4 Deep ON
Polycyclic Aromatic Hydrocarbons (PAHs)													
2-Methylnaphthalene	0.07 a	0.67 a	<0.016	**0.423**	<0.025	<0.019	<0.026	<0.018	0.029	0.025	<0.018	**0.09**	0.036
Acenaphthene	0.016 a	0.5 a	<0.016	**0.271**	**0.039**	<0.019	**0.027**	<0.018	**0.021**	**0.026**	<0.018	**0.241**	**0.032**
Acenaphthylene	0.044 a	0.64 a	<0.016	**0.925**	**0.077**	<0.019	**0.083**	<0.018	**0.198**	**0.104**	**0.319**	**0.183**	**0.677**
Anthracene	0.085 a	1.1 a	<0.016	**1.74**	**0.138**	<0.019	**0.107**	<0.018	**0.25**	**0.142**	**0.351**	**0.557**	**0.516**
Benzo(a)anthracene	0.261 a	1.6 a	<0.016	**2.15**	**0.268**	0.023	**0.269**	<0.018	**0.425**	**0.347**	**0.725**	**1.09**	**1.58**
Benzo(a)pyrene	0.43 a	1.6 a	<0.016	**2.18**	0.339	0.025	0.359	<0.018	**0.452**	**0.45**	**0.596**	**1.25**	**1.32**
Benzo(b)fluoranthene	NA	1.8 b	<0.016	**3.36**	0.471	0.03	0.507	<0.018	0.527	0.673	0.519	1.84	1.52
Benzo(g,h,i)perylene	NA	NA	<0.016	0.902	0.162	<0.019	0.298	<0.018	0.164	0.216	0.279	0.853	0.669
Benzo(k)fluoranthene	NA	NA	<0.016	0.693	0.121	<0.019	0.137	<0.018	0.171	0.174	0.134	0.52	1.51
Chrysene	0.384 a	2.8 a	<0.016	**2.33**	0.34	0.028	0.345	<0.018	**0.518**	**0.439**	**0.763**	**1.17**	**1.58**
Dibenzo(a,h)Anthracene	0.063 a	0.26 a	<0.016	**0.385**	0.052	<0.019	**0.071**	<0.018	**0.067**	0.063	**0.086**	**0.239**	**0.247**
Fluoranthene	0.6 a	5.1 a	<0.016	**5.89**	**0.602**	0.045	0.578	<0.018	**0.914**	**0.652**	**0.949**	**2.21**	**2.12**
Fluorene	0.019 a	0.54 a	<0.016	0.378	**0.049**	<0.019	**0.037**	<0.018	**0.049**	**0.045**	**0.043**	**0.316**	**0.098**
Hexachlorobenzene	NA	NA	<0.006	<0.027	<0.025	<0.019	<0.026	<0.018	<0.019	<0.022	<0.018	<0.024	<0.022
Indeno(1,2,3-cd)Pyrene	NA	NA	<0.016	1.24	0.209	<0.019	0.32	<0.018	0.216	0.27	0.271	1.03	0.677
Naphthalene	0.16 a	2.1 a	<0.016	**1.41**	0.105	<0.019	0.083	<0.018	0.086	0.082	0.028	**0.26**	0.081
Phenanthrene	0.24 a	1.5 a	<0.016	**1.19**	**0.362**	<0.019	**0.279**	<0.018	0.161	**0.299**	0.15	**1.94**	**0.301**
Pyrene	0.665 a	2.6 a	<0.016	**5.17**	0.58	0.045	0.564	<0.018	**0.81**	0.609	**1.32**	**2.26**	**3.41**
Total PAHs	4.022 a	44.792 a	<0.016	**30.637**	3.914	0.196	**4.064**	<0.018	5.058	**4.616**	**6.533**	**16.049**	**16.374**
Extractable Petraleum Hyrdocarbons													
C11-C22 Aromatics1,2	NA	NA	-	179	100	-	133	-	-	65.5	-	56.7	-
C11-C22 Unadjusted Aromatics1	NA	NA	-	179	106	-	192	-	-	67.8	-	58.1	-
C19-C36 Aliphatics1	NA	NA	-	58.4	130	-	110	-	-	77.9	-	68.3	-
C9-C18 Aliphatics1	NA	NA	-	<26.6	25.9	-	<25.9	-	-	<22.2	-	<24.0	-
Total EPH	NA	NA	-	237.4	255.9	-	243	-	-	143.4	-	125	-

Table 3D
SEDIMENT POLYCYCLIC AROMATIC HYDROCARBONS AND EXTRACTABLE PETROLEUM HYDROCARBON RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID / Date Sampled / Depth (ft) / Type / Group / Analyte	Marine Sediment Benchmarks ERLs		Marine Sediment Benchmarks ERMs		GZ-224 0_5ft-2ft 3/30/2015 0.5-2 Shallow ON	GZ-224 0ft-0_5ft 3/30/2015 0-0.5 Shallow ON	GZ-225 0ft-0_5ft 03/27/2015 0-0.5 Shallow ON	GZ-225 4ft-6ft 03/27/2015 4-6 Deep ON	GZ-225 6ft-7.2ft 03/27/2015 6-7.2 Deep ON	GZ-226 0_5ft-2ft 3/30/2015 0.5-2 Shallow ON	GZ-226 0ft-0_5ft 3/30/2015 0-0.5 Shallow ON	GZ-226 2ft-4ft 3/30/2015 2-4 Deep ON	LC-101 0ft-0_5ft 03/26/2015 0-0.5 Shallow LC	LC-101 2ft-4ft 03/26/2015 2-4 Deep LC	LC-101 6ft-8ft 03/26/2015 6-8 Deep LC
Polycyclic Aromotic Hydrocorbons (PAHs)															
2-Methylnaphthalene	0.07	a	0.67	a	**0.088**	0.033	<0.025	<0.022	<0.016	0.024	0.03	<0.017	**0.23**	<0.020	<0.017
Acenaphthene	0.016	a	0.5	a	**0.07**	**0.046**	<0.025	<0.022	<0.016	**0.022**	**0.037**	<0.017	**0.302**	<0.020	<0.017
Acenaphthylene	0.044	a	0.64	a	**1.29**	**0.111**	**0.055**	**0.072**	<0.016	**0.128**	**0.144**	<0.017	**1.17**	**0.051**	<0.017
Anthracene	0.085	a	1.1	a	**1.18**	**0.168**	**0.089**	0.056	<0.016	**0.169**	**0.183**	<0.017	**2.65**	0.052	<0.017
Benzo(a)anthracene	0.261	a	1.6	a	**2.85**	**0.578**	0.195	0.144	<0.016	**0.447**	**0.392**	<0.017	**3.97**	0.089	<0.017
Benzo(a)pyrene	0.43	a	1.6	a	**2.33**	**0.755**	0.237	0.143	<0.016	**0.516**	**0.545**	<0.017	**4.25**	0.091	<0.017
Benzo(b)fluoranthene	NA		1.8	b	2.87	1.13	0.365	0.155	<0.016	0.553	0.823	<0.017	5.03	0.135	<0.017
Benzo(g,h,i)perylene	NA		NA		1.02	0.501	0.102	0.048	<0.016	0.212	0.237	<0.017	1.66	0.045	<0.017
Benzo(k)fluoranthene	NA		NA		0.593	0.311	0.132	0.05	<0.016	0.161	0.268	<0.017	1.28	0.035	<0.017
Chrysene	0.384	a	2.8	a	**3.51**	**0.688**	0.256	0.167	<0.016	**0.449**	**0.486**	0.019	**3.63**	0.1	<0.017
Dibenzo(a,h)Anthracene	0.063	a	0.26	a	**0.395**	**0.167**	0.032	<0.022	<0.016	0.055	**0.076**	<0.017	**0.656**	<0.020	<0.017
Fluoranthene	0.6	a	5.1	a	**4.69**	**0.876**	0.401	0.256	<0.016	**0.753**	**0.764**	0.028	**8.56**	0.169	<0.017
Fluorene	0.019	a	0.54	a	**0.257**	**0.059**	<0.025	<0.022	<0.016	**0.044**	**0.057**	<0.017	**0.747**	<0.020	<0.017
Hexachlorobenzene	NA		NA		<0.023	<0.018	<0.025	<0.022	<0.016	<0.020	<0.023	<0.017	<0.025	<0.020	<0.017
Indeno(1,2,3-cd)Pyrene	NA		NA		1.17	0.603	0.126	0.057	<0.016	0.244	0.319	<0.017	2.08	0.052	<0.017
Naphthalene	0.16	a	2.1	a	**0.224**	0.1	0.045	<0.022	<0.016	0.071	0.136	<0.017	**0.867**	0.055	<0.017
Phenanthrene	0.24	a	1.5	a	**0.933**	**0.353**	0.138	0.053	<0.016	**0.248**	**0.314**	<0.017	**5.46**	0.042	<0.017
Pyrene	0.665	a	2.6	a	**5.37**	**0.795**	0.355	0.265	<0.016	**0.72**	**0.853**	0.033	**7.27**	0.193	<0.017
Total PAHs	4.022	a	44.792	a	**28.84**	**7.274**	2.528	1.466	<0.016	**4.816**	**5.664**	0.08	**49.812**	1.109	<0.017
Extroctoble Petroleum Hyrdocorbons															
C11-C22 Aromatics1,2	NA		NA		172	23.7	25.9	-	-	-	25.9	-	72.7	-	-
C11-C22 Unadjusted Aromatics1	NA		NA		193	24.8	31.9	-	-	-	25.9	-	88.3	-	-
C19-C36 Aliphatics1	NA		NA		166	38.6	80.9	-	-	-	<22.9	-	118	-	-
C9-C18 Aliphatics1	NA		NA		<23.2	<18.0	<25.3	-	-	-	<22.9	-	<25.2	-	-
Total EPH	NA		NA		338	62.3	106.8	-	-	-	25.9	-	190.7	-	-

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Marine Sediment Benchmarks		LC-102 0_5ft-2ft	LC-102 0ft-0_5ft	LC-103 0ft-0_5ft	LC-103 2ft-4ft	LC-103 4ft-6ft	LC-104 0_5ft-2ft	LC-104 0ft-0_5ft	LC-105 0ft-0_5ft	LC-105 2ft-4ft	LC-105 4ft-6ft	LC-106 0_5ft-2ft
Date Sampled			03/26/2015	03/26/2015	03/26/2015	03/26/2015	03/26/2015	03/26/2015	03/26/2015	03/26/2015	03/26/2015	03/26/2015	03/26/2015
Depth (ft)			0.5-2	0-0.5	0-0.5	2-4	4-6	0.5-2	0-0.5	0-0.5	2-4	4-6	0.5-2
Type			Shallow	Shallow	Shallow	Deep	Deep	Shallow	Shallow	Shallow	Deep	Deep	Shallow
Group			LC	LC	LC	LC	LC	LC	LC	LC	LC	LC	LC
Analyte	ERLs	ERMs											
Palycyclic Aramatic Hydrocarbons (PAHs)													
2-Methylnaphthalene	0.07 a	0.67 a	**0.126**	**0.127**	0.049	<0.017	<0.017	**0.447**	0.041	0.046	<0.028	<0.016	**0.08**
Acenaphthene	0.016 a	0.5 a	**0.074**	**0.108**	**0.054**	<0.017	<0.017	**1.56**	**0.058**	**0.07**	<0.028	<0.016	**0.072**
Acenaphthylene	0.044 a	0.64 a	**0.41**	**0.341**	**0.221**	<0.017	<0.017	**1.04**	**0.176**	**0.296**	**0.15**	0.04	**0.33**
Anthracene	0.085 a	1.1 a	**0.363**	**0.511**	**0.27**	<0.017	<0.017	**6.84**	**0.242**	**0.379**	**0.137**	0.039	**0.343**
Benzo(a)anthracene	0.261 a	1.6 a	**0.619**	**1.21**	**0.726**	<0.017	<0.017	**11.8**	**0.713**	**1.07**	0.181	0.046	**0.624**
Benzo(a)pyrene	0.43 a	1.6 a	**0.677**	**1.51**	**0.92**	<0.017	<0.017	**11.5**	**0.884**	**1.45**	0.244	0.052	**0.924**
Benzo(b)fluoranthene	NA	1.8 b	0.955	2.53	1.29	<0.017	<0.017	13.7	1.27	2.3	0.328	0.054	1.53
Benzo(g,h,i)perylene	NA	NA	0.37	0.706	0.759	<0.017	<0.017	7.45	0.617	1.08	0.178	0.028	0.416
Benzo(k)fluoranthene	NA	NA	0.287	0.694	0.326	<0.017	<0.017	1.61	0.308	0.49	0.093	0.019	0.445
Chrysene	0.384 a	2.8 a	**0.672**	**1.57**	**0.87**	<0.017	<0.017	**11.4**	**0.924**	**1.48**	0.232	0.04	**0.778**
Dibenzo(a,h)Anthracene	0.063 a	0.26 a	**0.115**	**0.232**	**0.185**	<0.017	<0.017	**1.74**	**0.168**	**0.296**	0.053	<0.016	**0.134**
Fluoranthene	0.6 a	5.1 a	**1.19**	**2.33**	**1.38**	<0.017	<0.017	**33.8**	**1.52**	**2.28**	0.369	0.132	**1.22**
Fluorene	0.019 a	0.54 a	**0.127**	**0.181**	**0.084**	<0.017	<0.017	**2.87**	**0.082**	**0.106**	**0.03**	**0.025**	**0.108**
Hexachlorobenzene	NA	NA	<0.037	<0.038	<0.028	<0.017	<0.017	<0.020	<0.034	<0.037	<0.028	<0.016	<0.033
Indeno(1,2,3-cd)Pyrene	NA	NA	0.41	0.888	0.824	<0.017	<0.017	8.75	0.699	1.24	0.184	0.029	0.55
Naphthalene	0.16 a	2.1 a	**0.58**	**0.544**	**0.248**	<0.017	<0.017	**1.3**	**0.212**	**0.223**	**0.176**	0.032	**0.49**
Phenanthrene	0.24 a	1.5 a	**0.481**	**1.16**	**0.609**	<0.017	<0.017	**28.3**	**0.718**	**0.953**	0.08	0.113	**0.594**
Pyrene	0.665 a	2.6 a	**1.6**	**2.45**	**1.51**	0.023	<0.017	**29.8**	**1.45**	**2.33**	0.481	0.136	**1.36**
Total PAHs	4.022 a	44.792 a	**9.056**	**17.092**	**10.325**	0.023	<0.017	**173.907**	**10.082**	**16.089**	2.916	0.785	**9.998**
Extractable Petroleum Hyrdocarbons													
C11-C22 Aromatics1,2	NA	NA	434	40.8	53	-	-	-	47.7	45.3	-	<16.2	93.7
C11-C22 Unadjusted Aromatics1	NA	NA	434	43	58.9	-	-	-	51.1	49.1	-	<16.2	99.9
C19-C36 Aliphatics1	NA	NA	266	99.4	90.7	-	-	-	105	109	-	<16.2	192
C9-C18 Aliphatics1	NA	NA	145	<37.3	<27.8	-	-	-	<34.3	<37.0	-	<16.2	36.2
Total EPH	NA	NA	845	140.2	143.7	-	-	-	152.7	154.3	-	<16.2	321.9

Wynn Resort Casino
Everett, Massachusetts

Sample ID / Date Sampled / Depth (ft) / Type / Group / Analyte	Marine Sediment Benchmarks ERLs		Marine Sediment Benchmarks ERMs		LC-106 0ft-0_5ft 03/26/2015 0-0.5 Shallow LC	LC-106 4ft-6ft 03/26/2015 4-6 Deep LC	LC-107 0ft-0_5ft 03/26/2015 0-0.5 Shallow LC	LC-107 2ft-4ft 03/26/2015 2-4 Deep LC	LC-108 0_5ft-2ft 03/26/2015 0.5-2 Shallow LC	LC-108 0ft-0_5ft 03/26/2015 0-0.5 Shallow LC	LC-108 4ft-6ft 03/26/2015 4-6 Deep LC	LC-109 0ft-0_5ft 03/26/2015 0-0.5 Shallow LC	LC-109 4ft-6ft 03/26/2015 4-6 Deep LC	LC-110 0ft-0_5ft 03/27/2015 0-0.5 Shallow LC	LC-110 2ft-4ft 03/27/2015 2-4 Deep LC
Polycyclic Aromatic Hydrocarbons (PAHs)															
2-Methylnaphthalene	0.07	a	0.67	a	0.046	**0.805**	0.05	**0.758**	0.044	0.056	**0.344**	**0.074**	**3.48**	**0.084**	**0.232**
Acenaphthene	0.016	a	0.5	a	**0.055**	**0.728**	**0.092**	**2.27**	**0.054**	**0.08**	**2.31**	**0.094**	**27**	**0.147**	**0.175**
Acenaphthylene	0.044	a	0.64	a	**0.198**	**0.8**	**0.268**	**0.488**	**0.264**	**0.31**	**1.8**	**0.417**	**101**	**0.429**	**1.15**
Anthracene	0.085	a	1.1	a	**0.292**	**1.3**	**0.419**	**5.61**	**0.257**	**0.349**	**4.6**	**0.423**	**177**	**0.574**	**1.16**
Benzo(a)anthracene	0.261	a	1.6	a	**0.62**	**1.15**	**1.26**	**10.8**	**0.469**	**0.877**	**4.25**	**1.01**	**129**	**1.4**	**3.32**
Benzo(a)pyrene	0.43	a	1.6	a	**0.888**	**0.99**	**1.64**	**7.84**	**0.579**	**1.2**	**4.54**	**1.36**	**130**	**1.72**	**3.86**
Benzo(b)fluoranthene	NA		1.8	b	1.37	1.37	2.9	10.6	0.79	1.71	5.31	2.1	147	2.27	4.17
Benzo(g,h,i)perylene	NA		NA		0.38	0.337	0.845	4.33	0.312	0.691	3.59	0.85	87.8	1.07	1.34
Benzo(k)fluoranthene	NA		NA		0.489	0.482	0.751	3.73	0.323	0.596	1.67	0.472	40.1	0.668	0.807
Chrysene	0.384	a	2.8	a	**0.893**	**1.25**	**1.72**	**10.8**	**0.467**	**1.19**	**4.21**	**1.27**	**104**	**1.54**	**3.56**
Dibenzo(a,h)Anthracene	0.063	a	0.26	a	**0.116**	**0.122**	**0.26**	**1.23**	**0.097**	**0.217**	**0.688**	**0.248**	**23**	**0.31**	**0.521**
Fluoranthene	0.6	a	5.1	a	**1.64**	**2.19**	**3.21**	**31.9**	**0.772**	**1.84**	**13.5**	**2.18**	**411**	**2.52**	**5.75**
Fluorene	0.019	a	0.54	a	**0.082**	**0.248**	**0.126**	**2.97**	**0.082**	**0.118**	**1.86**	**0.165**	**80.1**	**0.194**	**0.3**
Hexachlorobenzene	NA		NA		<0.039	<0.026	<0.040	<0.025	<0.030	<0.015	<0.037	<0.036	<0.043	<0.030	<0.018
Indeno(1,2,3-cd)Pyrene	NA		NA		0.473	0.402	1.05	5.51	0.372	0.812	3.65	0.99	93.9	1.32	1.68
Naphthalene	0.16	a	2.1	a	**0.234**	**4.9**	**0.205**	**1.32**	**0.168**	**0.281**	**3.34**	**0.372**	**20.7**	**0.537**	**0.543**
Phenanthrene	0.24	a	1.5	a	**0.634**	**2.27**	**1.15**	**24.9**	**0.448**	**0.878**	**8.35**	**1.14**	**415**	**1.3**	**1.51**
Pyrene	0.665	a	2.6	a	**1.29**	**2.52**	**2.74**	**23.8**	**1.14**	**1.89**	**11.5**	**2.21**	**322**	**2.68**	**6.26**
Total PAHs	4.022	a	44.792	a	**9.7**	**21.864**	**18.686**	**148.856**	**6.638**	**13.095**	**75.512**	**15.375**	**2312.08**	**18.763**	**36.338**
Extractable Petroleum Hyrdocarbons															
C11-C22 Aromatics1,2	NA		NA		45.1	-	149	631	-	66.5	371	103	-	137	-
C11-C22 Unadjusted Aromatics1	NA		NA		47.3	-	163	638	-	72	496	121	-	152	-
C19-C36 Aliphatics1	NA		NA		132	-	277	474	-	138	275	163	-	179	-
C9-C18 Aliphatics1	NA		NA		<39.4	-	<41.0	293	-	<38.7	139	<36.1	-	34.9	-
Total EPH	NA		NA		177.1	-	426	1398	-	204.5	785	266	-	350.9	-

Wynn Resort Casino
Everett, Massachusetts

Sample ID / Date Sampled / Depth (ft) / Type / Group / Analyte	Marine Sediment Benchmarks ERLs		Marine Sediment Benchmarks ERMs		LC-111 0_5ft-2ft 03/27/2015 0.5-2 Shallow LC	LC-111 0ft-0_5ft 03/27/2015 0-0.5 Shallow LC	LC-111 4ft-6ft 03/27/2015 4-6 Deep LC	LC-112 0ft-0_5ft 03/27/2015 0-0.5 Shallow LC	LC-112 4ft-6ft 03/27/2015 4-6 Deep LC
Polycyclic Aromotic Hydrocorbons (PAHs)									
2-Methylnaphthalene	0.07	a	0.67	a	**0.277**	**0.106**	<0.021	**0.19**	<0.016
Acenaphthene	0.016	a	0.5	a	**0.084**	**0.122**	<0.021	**0.104**	<0.016
Acenaphthylene	0.044	a	0.64	a	**1.02**	**0.452**	<0.021	**0.484**	0.032
Anthracene	0.085	a	1.1	a	**0.854**	**0.567**	<0.021	**0.556**	**0.095**
Benzo(a)anthracene	0.261	a	1.6	a	**1.63**	**1.34**	0.028	**1.25**	0.187
Benzo(a)pyrene	0.43	a	1.6	a	**1.96**	**1.82**	0.034	**1.76**	0.182
Benzo(b)fluoranthene	NA		1.8	b	2.6	2.45	0.043	2.43	0.188
Benzo(g,h,i)perylene	NA		NA		0.84	0.961	0.022	0.776	0.096
Benzo(k)fluoranthene	NA		NA		0.71	0.808	<0.021	0.968	0.061
Chrysene	0.384	a	2.8	a	**1.56**	**1.54**	0.031	**1.43**	0.175
Dibenzo(a,h)Anthracene	0.063	a	0.26	a	**0.348**	**0.294**	<0.021	**0.251**	0.023
Fluoranthene	0.6	a	5.1	a	**1.8**	**2.65**	0.051	**2.27**	0.363
Fluorene	0.019	a	0.54	a	**0.214**	**0.172**	<0.021	**0.171**	**0.023**
Hexachlorobenzene	NA		NA		<0.028	<0.032	<0.021	<0.030	<0.016
Indeno(1,2,3-cd)Pyrene	NA		NA		1.07	1.23	0.024	0.998	0.113
Naphthalene	0.16	a	2.1	a	**2.24**	**0.7**	<0.021	**0.908**	0.026
Phenanthrene	0.24	a	1.5	a	**0.759**	**1.23**	<0.021	**1.09**	0.194
Pyrene	0.665	a	2.6	a	**4.35**	**2.6**	0.07	**2.36**	0.38
Total PAHs	4.022	a	44.792	a	**22.316**	**19.042**	0.303	**17.996**	2.138
Extractable Petroleum Hyrdocorbons									
C11-C22 Aromatics1,2	NA		NA		-	139	-	45.9	<16.1
C11-C22 Unadjusted Aromatics1	NA		NA		-	175	-	50.3	<16.1
C19-C36 Aliphatics1	NA		NA		-	137	-	52.9	<16.1
C9-C18 Aliphatics1	NA		NA		-	<32.0	-	<31.0	<16.1
Total EPH	NA		NA		-	276	-	98.8	<16.1

Notes:

1. Results are presented in mg/kg unless otherwise noted.
2. "<" indicates that an analyte was tested for but not detected above the Method Reporting Limit (MRL). "-" indicates that an analyte was not tested for. NA indicates that a benchmark value is not available.
3. Samples are designated as "Shallow" if any portion of the sample depth occurs within the uppermost 2 feet of sediment. All other samples are designated as "Deep."
4. Group designations are as follows: ON = On-Site, OFF-W = Off-Site West, OFF-E = Off-Site East, and LC = Local Conditions.
5. Marine sediment benchmarks are from the following sources:
    a. Effects Range - Low (ERL) and Effects Range - Median (ERM) Marine Sediment screening values from Long, et al., 1995.
    b. ERL and ERM equivalent Marine Sediment benchmark values from http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf
6. Bolded values exceed the conservative ERL screening value.
7. Shaded values exceed the ERM benchmark value.
8. The LC-# series of samples are Local Conditions samples

Table 3E
SEDIMENT VOLATILE ORGANIC COMPOUNDS RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Marine Sediment Benchmarks		GZ-201 0ft-3ft	GZ-203 0ft-3ft	GZ-205 0ft-3ft	GZ-206 0ft-3ft	GZ-207 0ft-3ft	GZ-211 0ft-3ft	GZ-213 0ft-3ft	GZ-215 0ft-3ft	GZ-217 0ft-3ft	GZ-219 0ft-3ft	GZ-221 0ft-3ft	GZ-223 0ft-3ft	GZ-225 0ft-3ft
Date Sampled			0-3	03/24/2015	3/25/2015	3/25/2015	3/25/2015	3/30/2015	3/25/2015	0-3	03/24/2015	3/25/2015	3/30/2015	3/30/2015	03/27/2015
Depth (ft)			0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3
Type			5hallow	5hallow	5hallow	5hallow	5hallow	5hallow	5hallow	5hallow	5hallow	5hallow	5hallow	5hallow	5hallow
Group			OFF-E	OFF-E	OFF-E	ON	ON	OFF-E	ON	ON	ON	ON	ON	ON	ON
Analyte	ERLs	ERMs													
Volatile Organic Compounds (Low Level)															
1,1,1,2-Tetrachloroethane	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
1,1,1-Trichloroethane	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
1,1,2,2-Tetrachloroethane	NA	NA	<0.0022	<0.0025	<0.0063	<0.0057	<0.0065	<0.0023	<0.0008	<0.0007	<0.0011	<0.0023	<0.0019	<0.0026	<0.0025
1,1,2-Trichloroethane	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
1,1-Dichloroethane	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
1,1-Dichloroethene	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
1,1-Dichloropropene	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
1,2,3-Trichlorobenzene	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
1,2,3-Trichloropropane	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
1,2,4-Trichlorobenzene	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
1,2,4-Trimethylbenzene	NA	NA	<0.0054	0.0382	<0.0158	0.0716	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
1,2-Dibromo-3-Chloropropane	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
1,2-Dibromoethane	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
1,2-Dichlorobenzene	NA	0.013 b	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
1,2-Dichloroethane	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
1,2-Dichloropropane	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
1,3,5-Trimethylbenzene	NA	NA	<0.0054	0.0234	<0.0158	0.0448	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
1,3-Dichlorobenzene	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
1,3-Dichloropropane	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
1,4-Dichlorobenzene	NA	0.11 a	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
1,4-Dioxane	NA	NA	<0.109	<0.127	<0.316	<0.285	<0.326	<0.113	<0.0412	<0.0348	<0.0569	<0.117	<0.0939	<0.132	<0.124
2,2-Dichloropropane	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
2-Butanone	NA	NA	<0.0109	0.205	0.0433	0.316	0.0436	<0.0113	0.0068	<0.0035	0.0119	<0.0117	0.0095	<0.0132	<0.0124
2-Chlorotoluene	NA	NA	0.074	2.12	0.079	3.35	0.0237	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
2-Hexanone	NA	NA	<0.0109	<0.0127	<0.0316	<0.0285	<0.0326	<0.0113	<0.0041	<0.0035	<0.0057	<0.0117	<0.0094	<0.0132	<0.0124
4-Chlorotoluene	NA	NA	<0.0054	0.825	<0.0158	1.89	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
4-Isopropyltoluene	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
4-Methyl-2-Pentanone	NA	NA	<0.0109	0.0163	<0.0316	<0.0285	<0.0326	<0.0113	<0.0041	<0.0035	<0.0057	<0.0117	<0.0094	<0.0132	<0.0124
Acetone	NA	NA	<0.0109	1.18	0.278	1.75	0.317	0.0206	0.0504	0.0171	0.0898	<0.0117	0.0742	0.0716	0.0617
Benzene	0.34 b	NA	<0.0054	0.0366	<0.0158	0.0469	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
Bromobenzene	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
Bromochloromethane	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
Bromodichloromethane	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
Bromoform	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
Bromomethane	NA	NA	<0.0109	<0.0127	<0.0316	<0.0285	<0.0326	<0.0113	<0.0041	<0.0035	<0.0057	<0.0117	<0.0094	<0.0132	<0.0124
Carbon Disulfide	NA	NA	<0.0054	0.0294	0.024	0.0422	0.0334	0.0103	0.0045	0.0066	0.006	0.0078	0.0083	0.0066	0.0142
Carbon Tetrachloride	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
Chlorobenzene	NA	NA	<0.0054	0.0324	<0.0158	0.0641	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
Chloroethane	NA	NA	<0.0109	<0.0127	<0.0316	<0.0285	<0.0326	<0.0113	<0.0041	<0.0035	<0.0057	<0.0117	<0.0094	<0.0132	<0.0124
Chloroform	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
Chloromethane	NA	NA	<0.0109	<0.0127	<0.0316	<0.0285	<0.0326	<0.0113	<0.0041	<0.0035	<0.0057	<0.0117	<0.0094	<0.0132	<0.0124
cis-1,2-Dichloroethene	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
cis-1,3-Dichloropropene	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
Dibromochloromethane	NA	NA	<0.0022	<0.0025	<0.0063	<0.0057	<0.0065	<0.0023	<0.0008	<0.0007	<0.0011	<0.0023	<0.0019	<0.0026	<0.0025
Dibromomethane	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
Dichlorodifluoromethane	NA	NA	<0.0109	<0.0127	<0.0316	<0.0285	<0.0326	<0.0113	<0.0041	<0.0035	<0.0057	<0.0117	<0.0094	<0.0132	<0.0124
Diethyl Ether	NA	NA	<0.0054	0.0102	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
Di-isopropyl ether	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
Ethyl tertiary-butyl ether	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
Ethylbenzene	1.4 b	NA	<0.0054	0.18	<0.0158	0.398	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
Hexachlorobutadiene	NA	NA	<0.0054	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062

Sample ID	Marine Sediment Benchmarks		GZ-201 0ft-3ft	GZ-203 0ft-3ft	GZ-205 0ft-3ft	GZ-206 0ft-3ft	GZ-207 0ft-3ft	GZ-211 0ft-3ft	GZ-213 0ft-3ft	GZ-21S 0ft-3ft	GZ-217 0ft-3ft	GZ-219 0ft-3ft	GZ-221 0ft-3ft	GZ-223 0ft-3ft	GZ-225 0ft-3ft
Date Sampled				03/24/201S	3/2S/2015	3/25/201S	3/25/201S	3/30/2015	3/2S/2015		03/24/201S	3/25/2015	3/30/2015	3/30/2015	03/27/2015
Depth (ft)			0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3
Type			Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Group			OFF-E	OFF-E	OFF-E	ON	ON	OFF-E	ON	ON	ON	ON	ON	ON	ON
Analyte	ERLs	ERMs													
Isopropylbenzene	NA	NA	<0.00S4	0.0088	<0.0158	0.015S	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
Methyl tert-8utyl Ether	NA	NA	<0.00S4	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
Methylene Chloride	NA	NA	<0.0109	<0.0127	<0.0316	<0.028S	<0.0326	<0.0113	<0.0041	<0.003S	<0.00S7	<0.0117	<0.0094	<0.0132	<0.0124
Naphthalene	0.16 a	2.1 a	0.0105	**0.761**	<0.0158	**0.994**	0.0216	<0.00S6	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
n-8utylbenzene	NA	NA	<0.00S4	<0.0063	<0.0158	<0.0143	<0.0163	<0.00S6	<0.0021	<0.0017	<0.0028	<0.00S9	<0.0047	<0.0066	<0.0062
n-Propylbenzene	NA	NA	<0.00S4	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
sec-8utylbenzene	NA	NA	<0.00S4	0.0069	<0.0158	0.0161	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
Styrene	NA	NA	<0.00S4	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.00S9	<0.0047	<0.0066	<0.0062
tert-8utylbenzene	NA	NA	<0.00S4	<0.0063	<0.01S8	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.00S9	<0.0047	<0.0066	<0.0062
Tertiary-amyl methyl ether	NA	NA	<0.00S4	<0.0063	<0.01S8	<0.0143	<0.0163	<0.00S6	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
Tetrachloroethene	0.45 b	NA	<0.00S4	<0.0063	<0.0158	<0.0143	<0.0163	<0.00S6	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
Tetrahydrofuran	NA	NA	<0.00S4	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
Toluene	2.5 b	NA	<0.00S4	0.0423	<0.0158	0.1	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.00S9	<0.0047	<0.0066	<0.0062
trans-1,2-Dichloroethene	NA	NA	<0.00S4	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
trans-1,3-Dichloropropene	NA	NA	<0.00S4	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.00S9	<0.0047	<0.0066	<0.0062
Trichloroethene	1.6 b	NA	<0.00S4	<0.0063	<0.0158	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.00S9	<0.0047	<0.0066	<0.0062
Trichlorofluoromethane	NA	NA	<0.00S4	<0.0063	<0.01S8	<0.0143	<0.0163	<0.0056	<0.0021	<0.0017	<0.0028	<0.0059	<0.0047	<0.0066	<0.0062
Vinyl Chloride	NA	NA	<0.0109	<0.0127	<0.0316	<0.028S	<0.0326	<0.0113	<0.0041	<0.003S	<0.0057	<0.0117	<0.0094	<0.0132	<0.0124
Xylene O	NA	NA	<0.00S4	0.0501	<0.0158	0.102	<0.0163	<0.00S6	<0.0021	<0.0017	<0.0028	<0.00S9	<0.0047	<0.0066	<0.0062
Xylene P,M	NA	NA	<0.0109	0.0758	<0.0316	0.143	<0.0326	<0.0113	<0.0041	<0.003S	<0.0057	<0.0117	<0.0094	<0.0132	<0.0124
Xylenes (Total)	NA	NA	<0.0109	0.126	<0.0316	0.245	<0.0326	<0.0113	<0.0041	<0.003S	<0.0057	<0.0117	<0.0094	<0.0132	<0.0124

Sample ID	Marine Sediment Benchmarks		GZ-201 0ft-3ft	GZ-203 0ft-3ft	GZ-205 0ft-3ft	GZ-206 0ft-3ft	GZ-207 0ft-3ft	GZ-211 0ft-3ft	GZ-213 0ft-3ft	GZ-21S 0ft-3ft	GZ-217 0ft-3ft	GZ-219 0ft-3ft	GZ-221 0ft-3ft	GZ-223 0ft-3ft	GZ-225 0ft-3ft
Date Sampled				03/24/2015	3/25/2015	3/25/201S	3/25/2015	3/30/2015	3/2S/201S		03/24/201S	3/25/201S	3/30/201S	3/30/2015	03/27/201S
Depth (ft)			0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3
Type			Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Group			OFF-E	OFF-E	OFF-E	ON	ON	OFF-E	ON	ON	ON	ON	ON	ON	ON
Analyte	ERLs	ERMs													
Volatile Organic Compounds (Methonol)															
1,1,1,2-Tetrachloroethane	NA	NA	<0.392	<0.403	-	<0.497	-	-	-	-	<0.201	-	-	-	-
1,1,1-Trichloroethane	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
1,1,2,2-Tetrachloroethane	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
1,1,2-Trichloroethane	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
1,1-Dichloroethane	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
1,1-Dichloroethene	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
1,1-Dichloropropene	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
1,2,3-Trichlorobenzene	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
1,2,3-Trichloropropane	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
1,2,4-Trichlorobenzene	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
1,2,4-Trimethylbenzene	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
1,2-Dibromo-3-Chloropropane	NA	NA	<0.784	<0.806	-	<0.993	-	-	-	-	<0.402	-	-	-	-
1,2-Dibromoethane	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
1,2-Dichlorobenzene	NA	0.013 b	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
1,2-Dichloroethane	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
1,2-Dichloropropane	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
1,3,5-Trimethylbenzene	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
1,3-Dichlorobenzene	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
1,3-Dichloropropane	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
1,4-Dichlorobenzene	NA	0.11 a	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
1,4-Dioxane - Screen	NA	NA	<19.6	<20.2	-	<24.8	-	-	-	-	<10.0	-	-	-	-
2,2-Dichloropropane	NA	NA	<0.392	<0.403	-	<0.497	-	-	-	-	<0.201	-	-	-	-
2-8utanone	NA	NA	<0.784	<0.806	-	<0.993	-	-	-	-	<0.402	-	-	-	-
2-Chlorotoluene	NA	NA	<0.196	0.S52	-	7.56	-	-	-	-	<0.100	-	-	-	-
2-Hexanone	NA	NA	<0.784	<0.806	-	<0.993	-	-	-	-	<0.402	-	-	-	-
4-Chlorotoluene	NA	NA	<0.196	<0.202	-	2.25	-	-	-	-	<0.100	-	-	-	-
4-Isopropyltoluene	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
4-Methyl-2-Pentanone	NA	NA	<0.784	<0.806	-	<0.993	-	-	-	-	<0.402	-	-	-	-
Acetone	NA	NA	<0.784	1.31	-	1.44	-	-	-	-	0.434	-	-	-	-
Benzene	0.34 b	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Bromobenzene	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
8romochloromethane	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
8romodichloromethane	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
8romoform	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
8romomethane	NA	NA	<0.392	<0.403	-	<0.497	-	-	-	-	<0.201	-	-	-	-
Carbon Disulfide	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Carbon Tetrachloride	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Chlorobenzene	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Chloroethane	NA	NA	<0.392	<0.403	-	<0.497	-	-	-	-	<0.201	-	-	-	-
Chloroform	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Chloromethane	NA	NA	<0.392	<0.403	-	<0.497	-	-	-	-	<0.201	-	-	-	-
cis-1,2-Dichloroethene	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
cis-1,3-Dichloropropene	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Dibromochloromethane	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Dibromomethane	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Dichlorodifluoromethane	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Diethyl Ether	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Di-isopropyl ether	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Ethyl tertiary-butyl ether	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Ethylbenzene	1.4 b	NA	<0.196	<0.202	-	0.447	-	-	-	-	<0.100	-	-	-	-
Hexachlorobutadiene	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-

Table 3E
SEDIMENT VOLATILE ORGANIC COMPOUNDS RESULTS

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Marine Sediment Benchmarks		GZ-201 0ft-3ft	GZ-203 0ft-3ft	GZ-205 0ft-3ft	GZ-206 0ft-3ft	GZ-207 0ft-3ft	GZ-211 0ft-3ft	GZ-213 0ft-3ft	GZ-215 0ft-3ft	GZ-217 0ft-3ft	GZ-219 0ft-3ft	GZ-221 0ft-3ft	GZ-223 0ft-3ft	GZ-225 0ft-3ft
Date Sampled			0-3	03/24/2015	3/25/2015	3/25/2015	3/25/2015	3/30/2015	3/25/2015	0-3	03/24/2015	3/25/2015	3/30/2015	3/30/2015	03/27/2015
Depth (ft)			0-3	0-3	0-3	0-3	0-3	0-3	0-3	Shallow	0-3	0-3	0-3	0-3	0-3
Type			Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	ON	Shallow	Shallow	Shallow	Shallow	Shallow
Group			OFF-E	OFF-E	OFF-E	ON	ON	OFF-E	ON		ON	ON	ON	ON	ON
Analyte	ERLs	ERMs													
Isopropylbenzene	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Methyl tert-Butyl Ether	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Methylene Chloride	NA	NA	<0.784	<0.806	-	<0.993	-	-	-	-	<0.402	-	-	-	-
Naphthalene	0.16 a	2.1 a	<0.196	**0.637**	-	**4.84**	-	-	-	-	<0.100	-	-	-	-
n-Butylbenzene	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
n-Propylbenzene	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
sec-Butylbenzene	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Styrene	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
tert-Butylbenzene	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Tertiary-amyl methyl ether	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Tetrachloroethene	0.45 b	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Tetrahydrofuran	NA	NA	<0.784	<0.806	-	<0.993	-	-	-	-	<0.402	-	-	-	-
Toluene	2.5 b	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
trans-1,2-Dichloroethene	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
trans-1,3-Dichloropropene	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Trichloroethene	1.6 b	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Trichlorofluoromethane	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Vinyl Chloride	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Xylene O	NA	NA	<0.196	<0.202	-	<0.248	-	-	-	-	<0.100	-	-	-	-
Xylene P,M	NA	NA	<0.392	<0.403	-	<0.497	-	-	-	-	<0.201	-	-	-	-
Xylenes (Total)	NA	NA	<0.392	<0.403	-	<0.497	-	-	-	-	<0.201	-	-	-	-

Notes:

1. Results are presented in mg/kg unless otherwise noted.
2. "<" indicates that an analyte was tested for but not detected above the Method Reporting Limit (MRL). "-" indicates that an analyte was not tested for. NA indicates that a benchmark value is not available.
3. Samples are designated as "Shallow" if any portion of the sample depth occurs within the uppermost 2 feet of sediment. All other samples are designated as "Deep."
4. Group designations are as follows: ON = On-Site, OFF-W = Off-Site West, OFF-E = Off-Site East, and LC = Local Conditions.
5. Marine sediment benchmarks are from the following sources:
    a. Effects Range - Low (ERL) and Effects Range - Median (ERM) Marine Sediment screening values from Long, et al., 1995.
    b. ERL and ERM equivalent Marine Sediment benchmark values from http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf
6. Bolded values exceed the conservative ERL screening value.
7. Shaded values exceed the ERM benchmark value.
8. The LC-# series of samples are Local Conditions samples

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Percent Survival	Biomass (mg)	Reproduction (offspring)	Signficant Difference From Lab Control:			Arsenic	Lead	Mercury
				Survival	Biomass	Reproduction	(mg/kg)		
GZ-104T 0-0_5ft	54	0.3262	0.679		*	*	182	1070	2.51
GZ-114T 0-0_5ft	64	0.355	0.853		*	*	41.4	288	1.15
GZ-116T 0-0_5ft	86	0.8829	1.296			*	75.7	116	0.484
GZ-126T 0-0_5ft	84	0.3373	0		*	*	24.5	140	0.506
GZ-135T 0-0_5ft	94	0.8751	1.56			*	7.4	29.3	0.099
GZ-137T 0-0_5ft	82	0.4499	0.3		*	*	17.9	133	0.777
Laboratory Control	91	1.393	4.194				--	--	--

Notes:

1. Endpoint values (percent survival, biomass, and reproduction) are averages among five replicates run for each sample.
2. Biomass is average mg/individual at test initiation (dry weight of surviving amphipods/20).
3. Reproduction is average number of offspring per surviving adult amphipod.
4. * indicates that there was a statistally significant difference at the 95% confidence level between the water-side samples and the local conditions reference sample for the toxicity test endpoint.

Table 4B
2015 TOXICITY TEST RESULTS
Leptocheirus plumulosus 28-day Exposures

Wynn Resort Casino
Everett, Massachusetts

Sample ID	Percent Survival	Biomass (mg)	Reproduction (offspring)	Signficant Difference From Local Conditions Reference Sample: Survival LC-102	Survival LC-105	Survival LC-112	Biomass LC-102	Biomass LC-105	Biomass LC-112	Reproduction LC-102	Reproduction LC-105	Reproduction LC-112	Arsenic	Lead (mg/kg)	Mercury
GZ-203 0ft-0_5ft	77	1.418	1.475										25.5	200	0.728
GZ-207 0ft-0_5ft	69	1.272	1.183					*					37.6	237	0.668
GZ-209 0ft-0_5ft	73	1.473	3.029										38.6	245	1.03
GZ-213 0ft-0_5ft	82	1.167	0.329					*		*		*	54.1	190	0.551
GZ-214 0ft-0_5ft	70	1.213	0.854					*		*			43.7	263	0.847
GZ-217 0ft-0_5ft	57	0.538	0.151	*	*	*	*	*	*	*	*	*	164	791	0.979
GZ-223 0ft-0_5ft	85	1.46	1.613										35.6	250	0.974
GZ-224 0ft-0_5ft	71	0.941	0.118				*	*	*	*	*	*	70.7	649	0.672
GZ-225 0ft-0_5ft	73	1.021	1.357				*	*					41.1	389	0.319
LC-102 0ft-0_5ft	83	1.586	2.366										22.7	770	0.13
LC-105 0ft-0_5ft	87	1.772	1.519										19.5	194	0.095
LC-112 0ft-0_5ft	85	1.42	2.081					*					15.1	183	0.76
Artificial Laboratory Control	62	0.8779	1.73										--	--	--
Natural Laboratory Control	71	1.035	1.352										--	--	--

Notes:

1. Endpoint values (percent survival, biomass, and reproduction) are averages among five replicates run for each sample.
2. Biomass is average mg/individual at test initiation (dry weight of surviving amphipods/20).
3. Reproduction is average number of offspring per surviving adult amphipod.
4. * indicates that there was a statistally significant difference at the 95% confidence level between the water-side samples and the local conditions reference sample for the toxicity test endpoint.

TABLE 5
STUDY AREA AND LOCAL CONDITIONS SHALLOW SEDIMENT SUMMARY STATISTICS

Wynn Resort Casino
Everett, Massachusetts

Analyte[3]	Study Area (Shallow)				Local Conditions (Shallow)				Marine Sediment Benchmarks	
	Frequency of Detection	Maximum	Mean	Median	Frequency of Detection	Maximum	Mean	Median	ERL	ERM
Total Organic Carbon	82 / 82	138000	39658	40300	14 / 14	89400	66914	63500	NA	NA
Volatile Organic Compounds (Low Level)										
1,2,4-Trimethylbenzene	2 / 13	0.072	0.055	0.055	0 / 0	--	--	--	NA	NA
1,3,5-Trimethylbenzene	2 / 13	0.045	0.034	0.034	0 / 0	--	--	--	NA	NA
2-Butanone	7 / 13	0.316	0.091	0.043	0 / 0	--	--	--	NA	NA
2-Chlorotoluene	5 / 13	3.35	1.13	0.079	0 / 0	--	--	--	NA	NA
4-Chlorotoluene	2 / 13	1.89	1.36	1.36	0 / 0	--	--	--	NA	NA
4-Methyl-2-Pentanone	1 / 13	0.016	0.016	0.016	0 / 0	--	--	--	NA	NA
Acetone	11 / 13	1.75	0.355	0.074	0 / 0	--	--	--	NA	NA
Benzene	2 / 13	0.047	0.042	0.042	0 / 0	--	--	--	0.34 b	NA
Carbon Disulfide	12 / 13	0.042	0.016	0.009	0 / 0	--	--	--	NA	NA
Chlorobenzene	2 / 13	0.064	0.048	0.048	0 / 0	--	--	--	NA	NA
Diethyl Ether	1 / 13	0.010	0.010	0.010	0 / 0	--	--	--	NA	NA
Ethylbenzene	2 / 13	0.398	0.289	0.289	0 / 0	--	--	--	1.4 b	NA
Isopropylbenzene	2 / 13	0.016	0.012	0.012	0 / 0	--	--	--	NA	NA
Naphthalene	4 / 13	**0.994**	**0.447**	**0.391**	0 / 0	--	--	--	0.16 a	2.1 a
sec-Butylbenzene	2 / 13	0.016	0.012	0.012	0 / 0	--	--	--	NA	NA
Toluene	2 / 13	0.100	0.071	0.071	0 / 0	--	--	--	2.5 b	NA
Xylene O	2 / 13	0.102	0.076	0.076	0 / 0	--	--	--	NA	NA
Xylene P,M	2 / 13	0.143	0.109	0.109	0 / 0	--	--	--	NA	NA
Xylenes (Total)	2 / 13	0.245	0.186	0.186	0 / 0	--	--	--	NA	NA
Volatile Organic Compounds (Methanol)										
2-Chlorotoluene	2 / 4	7.56	4.06	4.06	0 / 0	--	--	--	NA	NA
4-Chlorotoluene	1 / 4	2.25	2.25	2.25	0 / 0	--	--	--	NA	NA
Acetone	3 / 4	1.44	1.06	1.31	0 / 0	--	--	--	NA	NA
Ethylbenzene	1 / 4	0.447	0.447	0.447	0 / 0	--	--	--	1.4 b	NA
Naphthalene	2 / 4	**4.84**	**2.74**	**2.74**	0 / 0	--	--	--	0.16 a	2.1 a
Polychlorinated Biphenyls (PCBs)										
Aroclor 1248	45 / 59	113	3.68	0.266	14 / 14	6.83	0.860	0.338	NA	NA
Aroclor 1254	47 / 59	3.09	0.708	0.485	14 / 14	8.39	1.25	0.635	NA	NA
Aroclor 1260	42 / 59	0.995	0.264	0.222	13 / 14	0.850	0.330	0.299	NA	NA
Aroclor 1262	1 / 59	0.009	0.009	0.009	0 / 14	ND	ND	ND	NA	NA
Aroclor 1268	0 / 59	ND	ND	ND	0 / 14	ND	ND	ND	NA	NA
Total PCBs	50 / 59	**113**	**4.20**	**1.06**	14 / 14	**15.2**	**2.41**	**1.28**	0.023 a	0.18 a
Semi-Volatile Organic Compounds (SVOCs)										
bis(2-Ethylhexyl)phthalate	45 / 59	**1870**	**86.7**	**2.11**	14 / 14	**278**	**24.0**	**2.49**	0.18216 b	2.64651 b
Butylbenzylphthalate	1 / 59	0.844	0.844	0.844	0 / 14	ND	ND	ND	NA	0.063 b
Carbazole	1 / 17	0.400	0.400	0.400	0 / 0	--	--	--	NA	NA
Dibenzofuran	1 / 59	0.727	0.727	0.727	0 / 14	ND	ND	ND	NA	NA
Di-n-octylphthalate	9 / 59	40.5	11.3	5.25	1 / 14	25.1	25.1	25.1	NA	NA
Hexachlorobutadiene	1 / 40	0.282	0.282	0.282	0 / 14	ND	ND	ND	NA	NA
Polycyclic Aromatic Hydrocarbons (PAHs)										
2-Methylnaphthalene	20 / 50	**0.571**	**0.109**	0.049	17 / 17	**0.447**	**0.122**	**0.080**	0.07 a	0.67 a
Acenaphthene	31 / 50	**0.505**	**0.079**	**0.037**	17 / 17	**1.56**	**0.184**	**0.084**	0.016 a	0.5 a
Acenaphthylene	42 / 50	**1.29**	**0.223**	**0.142**	17 / 17	**1.17**	**0.460**	**0.341**	0.044 a	0.64 a
Anthracene	43 / 50	**1.74**	**0.344**	**0.176**	17 / 17	**6.84**	**0.935**	**0.419**	0.085 a	1.1 a
Benzo(a)anthracene	49 / 50	**2.85**	**0.573**	**0.418**	17 / 17	**11.8**	**1.80**	**1.07**	0.261 a	1.6 a
Benzo(a)pyrene	49 / 50	**2.33**	**0.652**	**0.481**	17 / 17	**11.5**	**2.06**	**1.45**	0.43 a	1.6 a
Benzo(b)fluoranthene	49 / 50	3.36	0.928	0.673	17 / 17	13.7	2.78	2.27	NA	1.8 b
Benzo(g,h,i)perylene	49 / 50	1.69	0.420	0.282	17 / 17	7.45	1.16	0.776	NA	NA
Benzo(k)fluoranthene	45 / 50	1.42	0.317	0.205	17 / 17	1.61	0.660	0.596	NA	NA
Chrysene	49 / 50	**3.51**	**0.705**	**0.486**	17 / 17	**11.4**	**1.94**	**1.43**	0.384 a	2.8 a
Dibenzo(a,h)Anthracene	40 / 50	**0.460**	**0.138**	**0.099**	17 / 17	**1.74**	**0.333**	**0.248**	0.063 a	0.26 a
Fluoranthene	48 / 50	**5.89**	**1.06**	**0.696**	17 / 17	**33.8**	**4.19**	**2.18**	0.6 a	5.1 a
Fluorene	36 / 50	**0.896**	**0.118**	**0.055**	17 / 17	**2.87**	**0.331**	**0.127**	0.019 a	0.54 a
Indeno(1,2,3-cd)Pyrene	49 / 50	1.89	0.481	0.320	17 / 17	8.75	1.40	0.990	NA	NA
Naphthalene	39 / 50	**7.91**	**0.416**	0.130	17 / 17	**2.24**	**0.595**	**0.490**	0.16 a	2.1 a
Phenanthrene	48 / 50	**3.63**	**0.522**	**0.298**	17 / 17	**28.3**	**2.76**	**0.953**	0.24 a	1.5 a
Pyrene	50 / 50	**5.37**	**1.19**	**0.773**	17 / 17	**29.8**	**4.06**	**2.33**	0.665 a	2.6 a
Total PAHs	50 / 50	**30.6**	**7.78**	**5.07**	17 / 17	**174**	**25.8**	**16.1**	4.022 a	44.792 a
Classical Chemisty										
Corrosivity (pH)	13 / 13	8.41	7.89	7.91	0 / 0	--	--	--	NA	NA
Eh (ORP)	13 / 13	311	184	184	0 / 0	--	--	--	NA	NA
Percent Water	13 / 13	2.05	0.942	0.732	0 / 0	--	--	--	NA	NA
Reactive Sulfide	3 / 13	29.4	22.4	29.2	0 / 0	--	--	--	NA	NA
Extractable Petroleum Hydrocarbons										
C11-C22 Aromatics1,2	51 / 59	2790	291	68.0	14 / 14	434	105	69.6	NA	NA
C19-C36 Aliphatics1	51 / 59	1570	180	117	14 / 14	277	147	135	NA	NA
C9-C18 Aliphatics1	17 / 59	524	128	71.9	3 / 14	145	72.0	36.2	NA	NA
Total EPH	54 / 59	4312	485	181	14 / 14	845	268	198	NA	NA
Total Metals										
Antimony	14 / 96	2.60	1.51	1.56	6 / 17	2.01	1.05	0.790	NA	9.3 b
Arsenic	96 / 96	**249**	**53.0**	**35.1**	17 / 17	**35.5**	**21.5**	**21.0**	8.2 a	70 a
Barium	96 / 96	190	45.8	44.0	17 / 17	201	75.4	64.8	NA	48 b
Beryllium	94 / 96	1.50	0.446	0.400	17 / 17	0.870	0.581	0.570	NA	NA
Cadmium	73 / 96	**8.98**	**1.36**	1.06	17 / 17	**8.51**	**2.10**	**1.26**	1.2 a	9.6 a
Chromium	96 / 96	**169**	49.2	42.4	17 / 17	**170**	**85.1**	76.3	81 a	370 a
Lead	96 / 96	**1210**	**256**	**209**	17 / 17	**770**	**269**	**211**	47 a	218 a
Mercury	94 / 96	**11.9**	**1.20**	**0.766**	17 / 17	**1.08**	**0.408**	**0.256**	0.15 a	0.71 a
Nickel	96 / 96	**84.4**	16.7	15.2	17 / 17	**67.4**	**28.7**	**25.1**	21 a	52 a
Selenium	30 / 96	104	19.8	5.32	0 / 17	ND	ND	ND	NA	1 b
Silver	79 / 96	**5.11**	**1.31**	**1.09**	16 / 17	**3.09**	**1.44**	**1.22**	1 a	3.7 a
Thallium	1 / 96	1.37	1.37	1.37	0 / 17	ND	ND	ND	NA	NA
Vanadium	96 / 96	354	54.3	50.0	17 / 17	484	102	69.1	NA	57 b
Zinc	96 / 96	**1310**	**292**	**258**	17 / 17	**618**	**360**	**334**	150 a	410 a

Notes:
1. Results are presented in mg/kg unless otherwise noted.
2. "--" indicates that an analyte was not tested for. "ND" indicates that an analyte was tested for but not detected above the reporting limit.
   "NA" indicates that a benchmark value is not available
3. Only Analytes which were detected at least once are presented.
4. Shallow samples are those collected from the 0'-0.5' and 0.5'-2' depth intervals, and any other samples collected at a depth interval starting within 2' of the sediment surface
5. Marine sediment benchmarks are from the following sources:
   a. Effects Range - Low (ERL) and Effects Range - Median (ERM) Marine Sediment screening values from Long, et al., 1995.
   b. ERL and Er-M equivalent Marine Sediment benchmark values from http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf
6. Bolded values exceed the conservative ERL screening value.
7. Shaded values exceed the ERM benchmark value.

TABLE 6
Sediment COPEC Selection Table

Wynn Resort Casino
Everett, Massachusetts

Analyte	Select Contaminants for Site Plan Development					COPEC Selection				
	Study Area - Shallow Samples			Local Conditions Shallow Samples	Site Plan Warranted?	Statistical Comparisons: On-Site Area Shallow > Local Conditions	Former Everett Staging Yard Soil			Sediment COPEC?
	Frequency of Detection	ERM Freq. of Exceedances	95th Percentile	UTL95-95			Freq. of Detection	Average	Median	
Polycyclic Aromatic Hydrocarbons										
Total PAHs	100%	None	25.1	26.4	N	N	22.69%	26.15	14.38	
Polychlorinated Biphenyls										
Total PCBs	85%	68%	9.1	2.22	Y	N	11.87%	2.84	0.732	
Extractable Petroleum Hydrocarbons										
Total EPH	97%	NA	1528	483.3	Y	N	43.34%	446.55	258	
Phthalates										
bis(2-Ethylhexyl)phthalate	76%	36%	485	1	Y	N	6.57%	530.43	2.06	
Metals										
Arsenic	100%	20%	182	37.9	Y	Y	71.84%	34.01	14.9	Y
Mercury	98%	53%	4.14	1.51	Y	Y	42.06%	2.07	0.38	Y
Lead	100%	44%	751	423	Y	Y	61.31%	511.96	102.5	Y
Barium	100%	NA	77.5	88	N	N	96.92%	65.48	46.5	
Beryllium	98%	NA	0.761	0.755	N	N	--	--	--	
Cadmium	76%	None	2.59	1.97	N	N	14.83%	1.59	2.94	
Chromium	100%	None	91.9	99.5	N	N	96.92%	27.43	22.25	
Nickel	100%	2.1%	28.5	35.9	N	N	--	--	--	
Silver	82%	3.1%	2.38	1.79	N	N	14.66%	1.38	2.865	
Vanadium	100%	NA	103	101	N	N	--	--	--	
Zinc	100%	14%	675	625	N	N	--	--	--	

Notes:

1. Concentrations are in mg/kg unless otherwise noted.
2. ERM = Effects Range Median. See text for definition of ERM.
3. UTL95-95 = Upper Threshold Limit represeting the upper 95% confidence limit on the 95th percentile.
   The UTL95-95 was calculated using the EPA ProUCL v.5 statistical package
4. Average values shown for the Former Everett Staging Yard Soil samples incorporate 1/2 * RL as estimated concentrations for non-detect results.
5. The median values are based on detected values only.
6. EPH data were not available for the Former Everett Staging Yard soil samples; statistics shown are for total petroleum hydrocarbon concentrations.

TABLE 7
SUMMARY OF STATISTICAL TEST RESULTS
STUDY AREA SEDIMENT VS. LOCAL CONDITIONS

Wynn Resort Casino
Everett, Massachusetts

Analyte	Sample Group	Distribution Goodness of Fit Test Results		Equal Variances?	Significant Difference from LC		
		Normal	Log normal		T-Test	WS T-Test	WMW
Arsenic	Off-Site West	Y	Y	N	--	NS	--
	Off-Site East	Y	Y	Y	NS	--	--
	Water-Side Site	N	N	--	--	--	S*
	Local Conditions	Y	Y				
Mercury	Off-Site West	Y	Y	Y	NS*	--	--
	Off-Site East	Y	Y	Y	NS*	--	--
	Water-Side Site	N	N	--	--	--	S
	Local Conditions	N	Y				
Lead	Off-Site West	Y	N	--	--	--	NS
	Off-Site East	Y	Y	--	--	--	NS
	Water-Side Site	N	N	--	--	--	NS[6]
	Local Conditions	N	N				
Barium	Off-Site West	Y	Y	--	--	--	NS
	Off-Site East	N	Y	--	--	--	NS
	Water-Side Site	Y	Y	--	--	--	NS
	Local Conditions	N	N				
Beryllium	Off-Site West	Y	Y	Y	NS	--	--
	Off-Site East	Y	Y	N	--	NS	--
	Water-Side Site	Y	Y	N	--	NS	--
	Local Conditions	Y	Y				
Cadmium	Off-Site West	N	Y	--	--	--	NS
	Off-Site East	Y	Y	--	--	--	NS
	Water-Side Site	N	Y	--	--	--	NS
	Local Conditions	N	N				
Chromium	Off-Site West	N	Y	--	--	--	NS
	Off-Site East	N	N	--	--	--	NS
	Water-Side Site	Y	Y	--	--	--	NS
	Local Conditions	N	N				
Nickel	Off-Site West	N	Y	--	--	--	NS
	Off-Site East	Y	Y	--	--	--	NS
	Water-Side Site	N	Y	--	--	--	NS
	Local Conditions	N	N				
Silver	Off-Site West	Y	Y	Y	NS*	--	--
	Off-Site East	Y	Y	Y	NS*	--	--
	Water-Side Site	N	Y	N	--	NS*	--
	Local Conditions	N	Y				
Vanadium	Off-Site West	N	Y	--	--	--	NS
	Off-Site East	Y	Y	--	--	--	NS
	Water-Side Site	N	Y	--	--	--	NS
	Local Conditions	N	N				
Zinc	Off-Site West	N	Y	N	--	NS*	--
	Off-Site East	Y	Y	N	--	NS*	--
	Water-Side Site	N	Y	N	--	NS*	--
	Local Conditions	Y	Y				
Total PAHs	Off-Site West	Y	Y	--	--	--	NS
	Off-Site East	Y	N	--	--	--	NS
	Water-Side Site	N	Y	--	--	--	NS
	Local Conditions	N	N				
Total PCBs	Off-Site West	Y	Y	--	--	--	NS
	Off-Site East	N	Y	--	--	--	NS
	Water-Side Site	N	Y	--	--	--	NS
	Local Conditions	N	N				
Bis (2-ethylhexyl) phthalate	Off-Site West	Y	Y	--	--	--	NS
	Off-Site East	Y	Y	--	--	--	NS
	Water-Side Site	N	N	--	--	--	NS
	Local Conditions	N	N				
EPH	Off-Site West	Y	Y	Y	NS	--	--
	Off-Site East	N	Y	N	--	NS*	--
	Water-Side Site	N	Y	N	--	NS*	--
	Local Conditions	Y	Y				

Notes:

1. "--" indicates that a comparison using this test method was not appropriate based on data distrubution.
   "NS" indicates that there is no significant difference between the data group and the local conditions.
   "S" indicates that there is a significant dif
2. "*" indicates that the test was run using log transformed data.
3. Statistical analyses were conducted using the U.S. Environmental Protection Agency ProUCL v.5.0 statistical package.
4. Appendix H presents a summary of statistical methods used, decision tree, and result reports generated by ProUCL.
5. T-Test = Student's T-Test.
   WS T-Test=Welch-Satterthwaite two-sample T test for normally distributed data sets with unequal variances.
   WMW = Wilcoxon-Mann-Whitney non-parametric test for comparing data sets that are not normally distributed.
6. When the high outlier Local Conditions value of 770 mg/kg is removed from the statistical test run, Lead concentrations in the water-side site are significantly elevated above Local Conditions. (Outliers identified using the Dixon's and Rosner's outlier tests.)
7. Statistical tests were run for each of the other contaminants with high outlier values removed; removing the outliers did not change the outcome of the statistical comparisions.

Table 8A
ON-SITE SEDIMENT SUMMARY STATISTICS

[illegible]
Everett, Massachusetts

Analyte[2]	Water-Side Site (Shallow)				Water-Side Site (2'-4')				Water-Side Site (4'-6')				Water-Side Site (6'-10')				Marine Sediment Benchmarks			
	Frequency of Detection	Maximum	Mean	Median	Frequency of Detection	Maximum	Mean	Median	Frequency of Detection	Maximum	Mean	Median	Frequency of Detection	Maximum	Mean	Median	ERL		ERM	
Total Organic Carbon	52 / 52	138000	45471	43800	11 / 11	70100	47964	56500	6 / 6	58300	38783	46300	4 / 4	71000	29528	20950	NA		NA	
Volatile Organic Compounds (Low Level)																				
1,2,4-Trimethylbenzene	1 / 9	0.072	0.072	0.072	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
1,3,5-Trimethylbenzene	1 / 9	0.045	0.045	0.045	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
2-Butanone	5 / 9	0.316	0.078	0.012	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
2-Chlorotoluene	2 / 9	3.35	1.69	1.69	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
4-Chlorotoluene	1 / 9	1.89	1.89	1.89	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Acetone	8 / 9	1.75	0.304	0.073	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Benzene	1 / 9	0.047	0.047	0.047	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	0.34	b	NA	
Carbon Disulfide	9 / 9	0.042	0.014	0.008	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Chlorobenzene	1 / 9	0.064	0.064	0.064	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Ethylbenzene	1 / 9	0.398	0.398	0.398	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	1.4	b	NA	
Isopropylbenzene	1 / 9	0.016	0.016	0.016	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Naphthalene	2 / 9	0.994	0.508	0.508	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	0.16	a	2.1	a
sec-Butylbenzene	1 / 9	0.016	0.016	0.016	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Toluene	1 / 9	0.100	0.100	0.100	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	2.5	b	NA	
Xylene O	1 / 9	0.102	0.102	0.102	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Xylene P,M	1 / 9	0.143	0.143	0.143	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Xylenes (Total)	1 / 9	0.245	0.245	0.245	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Volatile Organic Compounds (Methanol)																				
2-Chlorotoluene	1 / 2	7.56	7.56	7.56	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
4-Chlorotoluene	1 / 2	2.25	2.25	2.25	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Acetone	2 / 2	1.44	0.937	0.937	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Ethylbenzene	1 / 2	0.447	0.447	0.447	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	1.4	b	NA	
Naphthalene	1 / 2	4.84	4.84	4.84	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	0.16	a	2.1	a
Polychlorinated Biphenyls (PCBs)																				
Aroclor 1248	33 / 40	113	4.08	0.175	5 / 9	59.7	17.4	2.51	2 / 3	2.08	1.20	1.20	2 / 4	2.45	1.37	1.37	NA		NA	
Aroclor 1254	33 / 40	3.09	0.719	0.452	5 / 9	3.88	2.23	2.81	2 / 3	2.63	1.47	1.47	2 / 4	1.11	0.805	0.805	NA		NA	
Aroclor 1260	30 / 40	0.995	0.274	0.189	3 / 9	1.42	1.31	1.26	2 / 3	1.77	0.930	0.930	1 / 4	0.685	0.685	0.685	NA		NA	
Aroclor 1262	1 / 40	0.009	0.009	0.009	0 / 9	NO	NO	NO	0 / 3	NO	NO	NO	1 / 4	0.187	0.187	0.187	NA		NA	
Total PCBs	35 / 40	113	4.76	0.779	7 / 9	59.7	14.6	6.56	2 / 3	6.48	3.59	3.59	2 / 4	4.25	2.61	2.61	0.023	a	0.18	a
Semi-Volatile Organic Compounds (SVOCs)																				
1,2-Dichlorobenzene	0 / 40	NO	NO	NO	1 / 9	0.564	0.564	0.564	0 / 3	NO	NO	NO	0 / 4	NO	NO	ND	NA		0.013	b
bis(2-Ethylhexyl)phthalate	31 / 40	1870	92.2	2.27	7 / 9	2900	825	357	2 / 3	74.0	53.3	53.3	3 / 4	789	434	498	0.18216	b	2.64651	b
Butylbenzylphthalate	1 / 40	0.844	0.844	0.844	1 / 9	0.598	0.598	0.598	0 / 3	NO	NO	NO	2 / 4	0.748	0.714	0.714	NA		0.063	b
Dibenzofuran	0 / 40	NO	NO	NO	0 / 9	NO	NO	NO	0 / 3	NO	NO	ND	1 / 4	0.624	0.624	0.624	NA		NA	
Di-n-octylphthalate	6 / 40	40.5	15.5	7.04	5 / 9	183	52.3	28.2	0 / 3	NO	NO	NO	3 / 4	36.2	13.7	4.14	NA		NA	
Hexachlorobutadiene	1 / 28	0.282	0.282	0.282	0 / 3	NO	NO	NO	1 / 2	0.178	0.178	0.178	0 / 0	--	--	--	NA		NA	
Polycyclic Aromatic Hydrocarbons (PAHs)																				
2-Methylnaphthalene	18 / 33	0.571	0.105	0.041	5 / 13	0.253	0.141	0.114	3 / 12	1.02	0.485	0.380	1 / 9	6.35	6.35	6.35	0.07	a	0.67	a
Acenaphthene	24 / 33	0.505	0.084	0.038	5 / 13	0.158	0.070	0.060	3 / 12	1.10	0.577	0.430	1 / 9	3.34	3.34	3.34	0.016	a	0.5	a
Acenaphthylene	27 / 33	1.29	0.268	0.165	10 / 13	0.677	0.178	0.099	5 / 12	1.04	0.313	0.147	1 / 9	1.89	1.89	1.89	0.044	a	0.64	a
Anthracene	28 / 33	1.74	0.409	0.218	10 / 13	0.516	0.199	0.155	5 / 12	1.52	0.522	0.369	2 / 9	3.83	1.94	1.94	0.085	a	1.1	a
Benzo(a)anthracene	33 / 33	2.85	0.643	0.442	10 / 13	1.58	0.412	0.240	5 / 12	1.55	0.523	0.316	2 / 9	3.25	1.66	1.66	0.261	a	1.6	a
Benzo(a)pyrene	33 / 33	2.33	0.725	0.516	10 / 13	1.32	0.371	0.220	5 / 12	2.24	0.707	0.349	2 / 9	2.25	1.15	1.15	0.43	a	1.6	a
Benzo(b)fluoranthene	33 / 33	3.36	1.05	0.752	11 / 13	1.52	0.450	0.278	5 / 12	2.49	0.823	0.478	3 / 9	3.33	1.14	0.065	NA		1.8	b
Benzo(g,h,i)perylene	33 / 33	1.69	0.465	0.298	9 / 13	0.669	0.263	0.157	5 / 12	1.46	0.417	0.185	3 / 9	1.62	0.565	0.038	NA		NA	
Benzo(k)fluoranthene	30 / 33	1.42	0.356	0.237	9 / 13	1.51	0.289	0.113	5 / 12	0.745	0.254	0.144	2 / 9	1.40	0.714	0.714	NA		NA	
Chrysene	33 / 33	3.51	0.796	0.518	11 / 13	1.58	0.407	0.182	6 / 12	1.89	0.527	0.332	3 / 9	3.09	1.06	0.067	0.384	a	2.8	a
Dibenz(a,h)Anthracene	25 / 33	0.460	0.161	0.127	5 / 13	0.247	0.114	0.086	2 / 12	0.544	0.292	0.292	1 / 9	0.601	0.601	0.601	0.063	a	0.26	a
Fluoranthene	32 / 33	5.89	1.24	0.759	12 / 13	2.12	0.555	0.417	6 / 12	2.19	0.725	0.529	3 / 9	4.93	1.69	0.114	0.6	a	5.1	a
Fluorene	25 / 33	0.896	0.139	0.057	6 / 13	0.187	0.104	0.106	3 / 12	1.35	0.678	0.350	1 / 9	3.36	3.36	3.36	0.019	a	0.54	a
Indeno(1,2,3-cd)Pyrene	33 / 33	1.89	0.535	0.330	9 / 13	0.677	0.280	0.162	5 / 12	1.59	0.449	0.195	3 / 9	1.79	0.622	0.041	NA		NA	
Naphthalene	27 / 33	7.91	0.509	0.136	8 / 13	1.15	0.357	0.164	3 / 12	3.32	2.05	2.65	2 / 9	15.2	7.65	7.65	0.16	a	2.1	a
Phenanthrene	32 / 33	3.63	0.612	0.330	10 / 13	0.767	0.386	0.342	5 / 12	5.13	1.57	1.08	3 / 9	9.55	3.23	0.122	0.24	a	1.5	a
Pyrene	33 / 33	5.37	1.41	0.849	12 / 13	3.41	0.755	0.458	7 / 12	4.65	1.06	0.644	3 / 9	6.84	2.33	0.125	0.665	a	2.6	a
Total PAHs	33 / 33	30.6	9.06	5.66	12 / 13	16.4	4.43	3.73	7 / 12	33.8	7.83	3.87	3 / 9	72.6	24.6	0.818	4.022	a	44.792	a
Classical Chemistry																				
Corrosivity (pH)	9 / 9	8.41	7.91	8.03	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Eh (ORP)	9 / 9	311	181	177	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Percent Water	9 / 9	2.05	0.862	0.732	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Reactive Sulfide	2 / 9	29.4	19.0	19.0	0 / 0	--	--	--	0 / 0	--	--	--	0 / 1	ND	NO	NO	NA		NA	
Extractable Petroleum Hydrocarbons																				
C11-C22 Aromatics1,2	37 / 40	2790	327	77.6	7 / 9	2630	1083	949	2 / 3	947	773	773	2 / 4	2530	2035	2035	NA		NA	
C19-C36 Aliphatics1	37 / 40	1570	192	108	7 / 9	1170	467	305	2 / 3	944	573	573	2 / 4	898	652	652	NA		NA	
C9-C18 Aliphatics1	12 / 40	524	130	75.8	5 / 9	442	273	228	2 / 3	169	167	167	2 / 4	612	378	378	NA		NA	
Total EPH	39 / 40	4312	532	178	7 / 9	2935	1745	1524	2 / 3	2060	1513	1513	2 / 4	4040	3064	3064	NA		NA	
Total Metals																				
Antimony	9 / 58	2.50	1.59	1.57	0 / 29	NO	NO	NO	1 / 28	1.22	1.22	1.22	1 / 18	2.90	2.90	2.90	NA		9.3	b
Arsenic	58 / 58	249	72.7	45.8	27 / 29	357	100	82.4	26 / 28	204	45.7	33.7	18 / 18	204	39.8	9.30	8.2	a	70	a
Barium	58 / 58	190	52.5	49.3	29 / 29	163	59.8	61.6	28 / 28	98.6	42.5	41.1	18 / 18	133	46.5	49.0	NA		48	b
Beryllium	56 / 58	1.50	0.505	0.485	28 / 29	1.51	0.647	0.640	27 / 28	1.01	0.475	0.460	18 / 18	0.940	0.524	0.510	NA		NA	
Cadmium	48 / 58	8.98	1.53	1.24	24 / 29	8.49	3.01	2.52	18 / 28	2.91	1.64	1.78	11 / 18	4.91	1.94	1.51	1.2	a	9.6	a
Chromium	58 / 58	169	57.4	52.7	29 / 29	212	90.6	88.0	28 / 28	201	62.5	44.6	18 / 18	183	69.6	52.6	81	a	370	a
Lead	58 / 58	1210	338	251	29 / 29	1800	317	270	24 / 28	452	150	157	16 / 18	710	162	147	47	a	218	a
Mercury	58 / 58	11.9	1.65	0.996	26 / 29	10.3	2.35	1.91	18 / 28	2.97	1.39	1.21	10 / 18	5.21	2.27	1.92	0.15	a	0.71	a
Nickel	58 / 58	84.4	19.1	16.2	29 / 29	38.2	20.0	17.8	28 / 28	30.4	14.0	11.9	18 / 18	23.9	14.1	11.5	21	a	52	a
Selenium	24 / 58	104	24.1	8.20	11 / 29	14.9	7.50	6.60	3 / 28	26.8	12.7	8.29	1 / 18	5.57	5.57	5.57	NA		1	b
Silver	51 / 58	5.11	1.42	1.23	22 / 29	10.8	2.81	2.52	16 / 28	4.95	1.96	1.78	9 / 18	5.14	2.25	1.74	1	a	3.7	a
Thallium	1 / 58	1.37	1.37	1.37	0 / 29	NO	NO	ND	0 / 28	ND	NO	ND	0 / 18	NO	ND	NO	NA		NA	
Vanadium	58 / 58	354	62.3	57.2	29 / 29	307	128	140	28 / 28	235	76.8	46.3	18 / 18	192	77.4	49.5	NA		57	b
Zinc	58 / 58	1230	341	314	29 / 29	956	344	342	28 / 28	427	153	125	18 / 18	833	162	66.8	150	a	410	a

Notes:
1. Results are presented in mg/kg unless otherwise noted.
2. "--" Indicates that an analyte was not tested for. "NO" indicates that an analyte was tested for but not detected above the reporting limit.
   "NA" indicates that a benchmark value is not available
3. Only Analytes which were detected at least once are presented.
4. Shallow samples are those collected from the 0'-0.5' and 0.5'-2' depth intervals, and any other samples collected at a depth interval starting within 2' of the sediment surface
5. Marine sediment benchmarks are from the following sources:
   a. Effects Range - Low (ERL) and Effects Range - Median (ERM) Marine Sediment screening values from Long, et al., 1995.
   b. ERL and ERM equivalent Marine Sediment benchmark values from http://epa. ERL and Er-M equivalent Marine Sediment benchmark values
6. Bolded values exceed the conservative ERL screening value.
7. Shaded values exceed the ERM benchmark value.

Wynn Resort Casino
Everett, Massachusetts

Analyte[2]	Off-Site East (Shallow)				Off-Site East (2'-4')				Off-Site East (4'-10')				Marine Sediment Benchmarks			
	Frequency of Detection	Maximum	Mean	Median	Frequency of Detection	Maximum	Mean	Median	Frequency of Detection	Maximum	Mean	Median	ERL		ERM	
Total Organic Carbon	12 / 12	76200	41693	45550	1 / 1	50900	50900	50900	0 / 0	--	--	--	NA		NA	
Volatile Organic Compounds (Low Level)																
1,2,4-Trimethylbenzene	1 / 4	0.038	0.038	0.038	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
1,3,5-Trimethylbenzene	1 / 4	0.023	0.023	0.023	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
2-Butanone	2 / 4	0.205	0.124	0.124	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
2-Chlorotoluene	3 / 4	2.12	0.758	0.079	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
4-Chlorotoluene	1 / 4	0.825	0.825	0.825	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
4-Methyl-2-Pentanone	1 / 4	0.016	0.016	0.016	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Acetone	3 / 4	1.18	0.493	0.278	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Benzene	1 / 4	0.037	0.037	0.037	0 / 0	--	--	--	0 / 0	--	--	--	0.34	b	NA	
Carbon Disulfide	3 / 4	0.029	0.021	0.024	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Chlorobenzene	1 / 4	0.032	0.032	0.032	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Diethyl Ether	1 / 4	0.010	0.010	0.010	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Ethylbenzene	1 / 4	0.180	0.180	0.180	0 / 0	--	--	--	0 / 0	--	--	--	1.4	b	NA	
Isopropylbenzene	1 / 4	0.009	0.009	0.009	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Naphthalene	2 / 4	**0.761**	**0.386**	**0.386**	0 / 0	--	--	--	0 / 0	--	--	--	0.16	a	2.1	a
sec-Butylbenzene	1 / 4	0.007	0.007	0.007	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Toluene	1 / 4	0.042	0.042	0.042	0 / 0	--	--	--	0 / 0	--	--	--	2.5	b	NA	
Xylene O	1 / 4	0.050	0.050	0.050	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Xylene P,M	1 / 4	0.076	0.076	0.076	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Xylenes (Total)	1 / 4	0.126	0.126	0.126	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Volatile Organic Compounds (Methanol)																
2-Chlorotoluene	1 / 2	0.552	0.552	0.552	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Acetone	1 / 2	1.31	1.31	1.31	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Naphthalene	1 / 2	**0.637**	**0.637**	**0.637**	0 / 0	--	--	--	0 / 0	--	--	--	0.16	a	2.1	a
Polychlorinated Biphenyls (PCBs)																
Aroclor 1248	11 / 12	21.5	2.76	0.496	1 / 1	1.77	1.77	1.77	0 / 0	--	--	--	NA		NA	
Aroclor 1254	10 / 12	2.83	0.722	0.650	1 / 1	2.07	2.07	2.07	0 / 0	--	--	--	NA		NA	
Aroclor 1260	10 / 12	0.699	0.244	0.257	1 / 1	0.741	0.741	0.741	0 / 0	--	--	--	NA		NA	
Total PCBs	11 / 12	**21.5**	**3.64**	**1.44**	1 / 1	**4.58**	**4.58**	**4.58**	0 / 0	--	--	--	0.023	a	0.18	a
Semi-Volatile Organic Compounds (SVOCs)																
bis(2-Ethylhexyl)phthalate	10 / 12	**694**	**103**	**1.76**	1 / 1	**1120**	**1120**	**1120**	0 / 0	--	--	--	0.18216	b	2.64651	b
Butylbenzylphthalate	0 / 12	ND	ND	ND	0 / 1	ND	ND	ND	0 / 0	--	--	--	NA		0.063	b
Dibenzofuran	0 / 12	ND	ND	ND	0 / 1	ND	ND	ND	0 / 0	--	--	--	NA		NA	
Di-n-octylphthalate	3 / 12	5.25	3.02	2.47	1 / 1	2.19	2.19	2.19	0 / 0	--	--	--	NA		NA	
Hexachlorobutadiene	0 / 12	ND	ND	ND	0 / 1	ND	ND	ND	0 / 0	--	--	--	NA		NA	
Polycyclic Aromatic Hydrocarbons (PAHs)																
2-Methylnaphthalene	0 / 10	ND	ND	ND	2 / 4	**1.54**	**0.985**	**0.985**	3 / 5	**0.083**	0.055	0.060	0.07	a	0.67	a
Acenaphthene	5 / 10	**0.049**	**0.031**	**0.029**	3 / 4	**0.599**	**0.358**	**0.447**	2 / 5	**0.135**	**0.078**	**0.078**	0.016	a	0.5	a
Acenaphthylene	9 / 10	**0.190**	**0.076**	**0.071**	3 / 4	**0.519**	**0.360**	**0.509**	3 / 5	**0.087**	**0.061**	**0.078**	0.044	a	0.64	a
Anthracene	9 / 10	**0.187**	**0.108**	**0.104**	3 / 4	**1.07**	**0.718**	**1.03**	3 / 5	**0.309**	**0.144**	**0.088**	0.085	a	1.1	a
Benzo(a)anthracene	9 / 10	**0.521**	**0.291**	**0.291**	3 / 4	**0.975**	**0.638**	**0.864**	3 / 5	0.169	0.125	0.154	0.261	a	1.6	a
Benzo(a)pyrene	9 / 10	**0.690**	0.358	0.350	3 / 4	**0.904**	**0.625**	**0.868**	3 / 5	0.197	0.139	0.173	0.43	a	1.6	a
Benzo(b)fluoranthene	9 / 10	1.07	0.507	0.517	3 / 4	1.43	0.904	1.16	3 / 5	0.276	0.191	0.242	NA		1.8	b
Benzo(g,h,i)perylene	9 / 10	0.581	0.255	0.187	2 / 4	0.568	0.494	0.494	3 / 5	0.106	0.075	0.091	NA		NA	
Benzo(k)fluoranthene	9 / 10	0.337	0.151	0.137	3 / 4	0.459	0.301	0.392	2 / 5	0.103	0.084	0.084	NA		NA	
Chrysene	9 / 10	**0.693**	0.361	0.354	3 / 4	**1.14**	**0.787**	**1.12**	3 / 5	0.234	0.158	0.183	0.384	a	2.8	a
Dibenzo(a,h)Anthracene	9 / 10	**0.146**	**0.066**	0.055	1 / 4	**0.121**	**0.121**	**0.121**	2 / 5	0.032	0.031	0.031	0.063	a	0.26	a
Fluoranthene	9 / 10	**1.07**	0.578	**0.612**	3 / 4	**2.41**	**1.63**	**2.30**	3 / 5	0.455	0.284	0.303	0.6	a	5.1	a
Fluorene	7 / 10	**0.073**	**0.039**	**0.038**	3 / 4	**1.06**	**0.584**	**0.665**	2 / 5	**0.160**	**0.095**	**0.095**	0.019	a	0.54	a
Indeno(1,2,3-cd)Pyrene	9 / 10	0.628	0.280	0.222	2 / 4	0.581	0.520	0.520	3 / 5	0.114	0.082	0.102	NA		NA	
Naphthalene	7 / 10	**0.223**	0.107	0.125	3 / 4	**14.8**	**6.15**	**3.52**	4 / 5	**1.17**	**0.377**	0.157	0.16	a	2.1	a
Phenanthrene	9 / 10	**0.442**	0.236	0.230	3 / 4	**2.81**	**1.72**	**2.26**	3 / 5	**0.636**	**0.262**	0.124	0.24	a	1.5	a
Pyrene	10 / 10	**1.09**	0.515	0.502	3 / 4	**2.58**	**1.79**	**2.56**	3 / 5	0.560	0.333	0.332	0.665	a	2.6	a
Total PAHs	10 / 10	**7.99**	3.57	3.48	3 / 4	**33.2**	**17.9**	**19.3**	4 / 5	**4.73**	1.95	1.42	4.022	a	44.792	a
Classical Chemistry																
Corrosivity (pH)	4 / 4	8.18	7.86	7.87	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Eh (ORP)	4 / 4	272	195	217	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Percent Water	4 / 4	1.99	1.22	1.22	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Reactive Sulfide	1 / 4	29.2	29.2	29.2	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Extractable Petroleum Hydrocarbons																
C11-C22 Aromatics1,2	8 / 12	818	239	58.8	1 / 1	2280	2280	2280	0 / 0	--	--	--	NA		NA	
C19-C36 Aliphatics1	9 / 12	256	120	120	1 / 1	391	391	391	0 / 0	--	--	--	NA		NA	
C9-C18 Aliphatics1	2 / 12	269	220	220	1 / 1	574	574	574	0 / 0	--	--	--	NA		NA	
Total EPH	9 / 12	1154	381	183	1 / 1	3245	3245	3245	0 / 0	--	--	--	NA		NA	
Total Metals																
Antimony	2 / 14	0.540	0.520	0.520	0 / 4	ND	ND	ND	1 / 5	0.580	0.580	0.580	NA		9.3	b
Arsenic	14 / 14	**36.5**	**21.2**	**21.6**	4 / 4	**61.4**	**28.1**	**23.3**	5 / 5	**18.8**	**12.1**	**14.0**	8.2	a	70	a
Barium	14 / 14	69.4	40.1	47.0	4 / 4	75.0	46.2	46.1	5 / 5	50.7	34.5	33.4	NA		48	b
Beryllium	14 / 14	0.710	0.444	0.505	4 / 4	0.570	0.453	0.460	5 / 5	0.580	0.424	0.450	NA		NA	
Cadmium	9 / 14	**1.54**	1.01	1.06	2 / 4	**1.74**	**1.59**	**1.59**	3 / 5	**1.38**	0.883	0.770	1.2	a	9.6	a
Chromium	14 / 14	**88.6**	48.7	60.8	4 / 4	**96.5**	55.5	54.8	5 / 5	63.5	34.7	32.0	81	a	370	a
Lead	14 / 14	**237**	**141**	**154**	4 / 4	**246**	**130**	**133**	5 / 5	**178**	**72.3**	**77.2**	47	a	218	a
Mercury	14 / 14	**0.728**	**0.343**	**0.254**	3 / 4	**1.11**	**0.558**	**0.307**	3 / 5	**0.498**	**0.301**	**0.218**	0.15	a	0.71	a
Nickel	14 / 14	**30.4**	16.4	17.9	4 / 4	17.4	14.2	14.9	5 / 5	**22.9**	14.5	12.4	21	a	52	a
Selenium	1 / 14	2.23	2.23	2.23	0 / 4	ND	ND	ND	0 / 5	ND	ND	ND	NA		1	b
Silver	7 / 14	**2.11**	**1.23**	**1.09**	2 / 4	**1.30**	**1.03**	**1.03**	1 / 5	**1.36**	**1.36**	**1.36**	1	a	3.7	a
Vanadium	14 / 14	105	53.1	61.4	4 / 4	109	66.6	67.9	5 / 5	90.0	44.0	36.8	NA		57	b
Zinc	14 / 14	**674**	**255**	**280**	4 / 4	**280**	**171**	**189**	5 / 5	**216**	106	128	150	a	410	a

Notes:
1. Results are presented in mg/kg unless otherwise noted.
2. "--" indicates that an analyte was not tested for. "ND" indicates that an analyte was tested for but not detected above the reporting limit.
"NA" indicates that a benchmark value is not available
3. Only Analytes which were detected at least once are presented.
4. Shallow samples are those collected from the 0'-0.5' and 0.5'-2' depth intervals, and any other samples collected at a depth interval starting within 2' of the sediment surface
5. Marine sediment benchmarks are from the following sources:
a. Effects Range - Low (ERL) and Effects Range - Median (ERM) Marine Sediment screening values from Long, et al., 1995.
b. ERL and ERM equivalent Marine Sediment benchmark values from http://epa. ERL and Er-M equivalent Marine Sediment benchmark values
6. Bolded values exceed the conservative ERL screening value.
7. Shaded values exceed the ERM benchmark value.

Table 8C
OFF-SITE WEST SEDIMENT SUMMARY STATISTICS

Wyn[illegible]
Everett, Mass[illegible]

Analyte[2]	Off-Site West (Shallow)				Off-Site West (2'-4')				Off-Site West (4'-6')				Off-Site West (6'-10')				Marine Sediment Benchmarks			
	Frequency of Detection	Maximum	Mean	Median	Frequency of Detection	Maximum	Mean	Median	Frequency of Detection	Maximum	Mean	Median	Frequency of Detection	Maximum	Mean	Median	ERL		ERM	
Total Organic Carbon	18 / 18	61300	21506	15650	5 / 5	32100	11796	6760	0 / 0	--	--	--	2 / 2	19100	14600	14600	NA		NA	
2-Chlorotoluene	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
4-Chlorotoluene	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Acetone	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Ethylbenzene	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	1.4	b	NA	
Naphthalene	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	0.16	a	2.1	a
Polychlorinated Biphenyls (PCBs)																				
Aroclor 1248	1 / 7	0.411	0.411	0.411	1 / 3	0.080	0.080	0.080	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Aroclor 1254	4 / 7	1.44	0.579	0.403	1 / 3	0.083	0.083	0.083	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Aroclor 1260	2 / 7	0.367	0.213	0.213	0 / 3	NO	NO	NO	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Total PCBs	4 / 7	1.49	0.789	0.796	1 / 3	0.219	0.219	0.219	0 / 0	--	--	--	0 / 0	--	--	--	0.023	a	0.18	a
Semi-Volatile Organic Compounds (SVOCs)																				
1,2-Dichlorobenzene	0 / 7	NO	NO	NO	0 / 3	NO	NO	NO	0 / 0	--	--	--	0 / 0	--	--	--	NA		0.013	b
bis(2-Ethylhexyl)phthalate	4 / 7	6.37	3.85	4.31	1 / 3	30.1	30.1	30.1	0 / 0	--	--	--	0 / 0	--	--	--	0.18216	b	2.64651	b
Carbazole	1 / 7	0.400	0.400	0.400	0 / 3	NO	NO	NO	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Dibenzofuran	1 / 7	0.727	0.727	0.727	0 / 3	NO	NO	NO	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Di-n-octylphthalate	0 / 7	NO	ND	NO	0 / 3	NO	ND	NO	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Hexachlorobutadiene	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Polycyclic Aromatic Hydrocarbons (PAHs)																				
2-Methylnaphthalene	2 / 7	0.171	0.146	0.146	1 / 3	0.107	0.107	0.107	0 / 0	--	--	--	0 / 0	--	--	--	0.07	a	0.67	a
Acenaphthene	2 / 7	0.165	0.148	0.148	1 / 3	0.190	0.190	0.190	0 / 0	--	--	--	0 / 0	--	--	--	0.016	a	0.5	a
Acenaphthylene	6 / 7	0.496	0.241	0.201	1 / 3	0.258	0.258	0.258	0 / 0	--	--	--	0 / 0	--	--	--	0.044	a	0.64	a
Anthracene	6 / 7	0.625	0.390	0.406	1 / 3	0.703	0.703	0.703	0 / 0	--	--	--	0 / 0	--	--	--	0.085	a	1.1	a
Benzo(a)anthracene	7 / 7	1.15	0.606	0.640	1 / 3	0.906	0.906	0.906	0 / 0	--	--	--	0 / 0	--	--	--	0.261	a	1.6	a
Benzo(a)pyrene	7 / 7	1.50	0.685	0.738	1 / 3	0.982	0.982	0.982	0 / 0	--	--	--	0 / 0	--	--	--	0.43	a	1.6	a
Benzo(b)fluoranthene	7 / 7	2.16	0.898	0.840	2 / 3	1.18	0.597	0.597	0 / 0	--	--	--	0 / 0	--	--	--	NA		1.8	b
Benzo(g,h,i)perylene	7 / 7	1.03	0.423	0.443	1 / 3	0.552	0.552	0.552	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Benzo(k)fluoranthene	6 / 7	0.858	0.372	0.351	1 / 3	0.437	0.437	0.437	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Chrysene	7 / 7	1.47	0.719	0.670	1 / 3	0.946	0.946	0.946	0 / 0	--	--	--	0 / 0	--	--	--	0.384	a	2.8	a
Dibenzo(a,h)Anthracene	6 / 7	0.299	0.152	0.154	1 / 3	0.181	0.181	0.181	0 / 0	--	--	--	0 / 0	--	--	--	0.063	a	0.26	a
Fluoranthene	7 / 7	1.88	0.883	0.975	2 / 3	1.52	0.767	0.767	0 / 0	--	--	--	0 / 0	--	--	--	0.6	a	5.1	a
Fluorene	4 / 7	0.218	0.127	0.140	1 / 3	0.187	0.187	0.187	0 / 0	--	--	--	0 / 0	--	--	--	0.019	a	0.54	a
Indeno(1,2,3-cd)Pyrene	7 / 7	1.16	0.485	0.532	1 / 3	0.641	0.641	0.641	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Naphthalene	5 / 7	0.825	0.342	0.285	1 / 3	0.394	0.394	0.394	0 / 0	--	--	--	0 / 0	--	--	--	0.16	a	2.1	a
Phenanthrene	7 / 7	1.21	0.478	0.296	1 / 3	1.19	1.19	1.19	0 / 0	--	--	--	0 / 0	--	--	--	0.24	a	1.5	a
Pyrene	7 / 7	2.36	1.17	1.08	2 / 3	2.02	1.02	1.02	0 / 0	--	--	--	0 / 0	--	--	--	0.665	a	2.6	a
Total PAHs	7 / 7	17.5	7.73	7.20	2 / 3	12.4	6.22	6.22	0 / 0	--	--	--	0 / 0	--	--	--	4.022	a	44.792	a
Extractable Petroleum Hydrocarbons																				
C11-C22 Aromatics1,2	6 / 7	262	139	121	1 / 3	66.9	66.9	66.9	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
C19-C36 Aliphatics1	5 / 7	398	198	151	1 / 3	61.2	61.2	61.2	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
C9-C18 Aliphatics1	3 / 7	71.9	60.2	54.6	0 / 3	NO	NO	NO	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Total EPH	6 / 7	678	334	279	1 / 3	128	128	128	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Total Metals																				
Antimony	3 / 24	2.60	1.93	1.80	1 / 13	1.50	1.50	1.50	0 / 7	NO	NO	NO	0 / 4	ND	ND	NO	NA		9.3	b
Arsenic	24 / 24	68.3	23.7	20.9	12 / 13	31.0	8.58	3.60	7 / 7	33.8	8.47	4.50	3 / 4	42.5	16.4	4.20	8.2	a	70	a
Barium	24 / 24	64.9	32.8	30.4	13 / 13	59.0	16.8	9.80	7 / 7	72.6	18.5	8.80	4 / 4	90.1	32.4	14.5	NA		48	b
Beryllium	24 / 24	0.730	0.309	0.265	13 / 13	0.600	0.237	0.220	7 / 7	0.630	0.274	0.240	4 / 4	0.440	0.318	0.320	NA		NA	
Cadmium	16 / 24	3.38	1.06	0.870	4 / 13	1.75	0.675	0.330	2 / 7	2.36	1.32	1.32	3 / 4	3.74	1.46	0.350	1.2	a	9.6	a
Chromium	24 / 24	86.6	29.8	20.0	13 / 13	61.6	14.9	10.6	7 / 7	75.7	20.2	10.2	4 / 4	104	35.9	14.7	81	a	370	a
Lead	24 / 24	298	124	119	6 / 13	146	75.7	85.3	4 / 7	177	47.8	5.60	2 / 4	307	155	155	47	a	218	a
Mercury	22 / 24	1.10	0.541	0.485	3 / 13	1.38	0.751	0.816	1 / 7	1.73	1.73	1.73	1 / 4	2.44	2.44	2.44	0.15	a	0.71	a
Nickel	24 / 24	29.9	11.0	9.35	13 / 13	19.2	7.30	6.40	7 / 7	20.0	8.54	7.10	4 / 4	15.4	9.68	8.65	21	a	52	a
Selenium	5 / 24	4.43	2.55	2.25	1 / 13	1.78	1.78	1.78	0 / 7	NO	NO	NO	1 / 4	3.12	3.12	3.12	NA		1	b
Silver	21 / 24	2.83	1.07	0.900	3 / 13	1.38	1.10	0.960	2 / 7	1.53	0.890	0.890	1 / 4	2.08	2.08	2.08	1	a	3.7	a
Vanadium	24 / 24	131	35.5	25.5	13 / 13	51.3	17.3	14.3	7 / 7	57.3	21.2	16.2	4 / 4	97.5	37.1	18.8	NA		57	b
Zinc	24 / 24	1310	194	133	13 / 13	276	57.5	19.8	7 / 7	310	61.5	21.2	4 / 4	485	138	24.7	150	a	410	a

Notes:
1. Results are presented in mg/kg unless otherwise noted.
2. "--" indicates that an analyte was not tested for. "NO" indicates that an analyte was tested for but not detected above the reporting limit.
   "NA" indicates that a benchmark value is not available
3. Only Analytes which were detected at least once are presented.
4. Shallow samples are those collected from the 0'-0.5' and 0.5'-2' depth intervals, and any other samples collected at a depth interval starting within 2' of the sediment surface
5. Marine sediment benchmarks are from the following sources:
   a. Effects Range - Low (ERL) and Effects Range - Median (ERM) Marine Sediment screening values from Long, et al., 1995.
   b. ERL and ERM equivalent Marine Sediment benchmark values from http://epa ERL and Er-M equivalent Marine Sediment benchmark values
6. Bolded values exceed the conservative ERL screening value.
7. Shaded values exceed the ERM benchmark value.

Table 8D
LOCAL CONDITIONS SEDIMENT SUMMARY STATISTICS

Wynn Resort Casino
Everett, Massachusetts

Analyte[2]	Local Conditions (Shallow)				Local Conditions (2'-4')				Local Conditions (4'-10')				Marine Sediment Benchmarks			
	Frequency of Detection	Maximum	Mean	Median	Frequency of Detection	Maximum	Mean	Median	Frequency of Detection	Maximum	Mean	Median	ERL		ERM	
Total Organic Carbon	14 / 14	89400	66914	63500	1 / 1	35900	35900	35900	3 / 3	33400	14863	7310	NA		NA	
Polychlorinated Biphenyls (PCBs)																
Aroclor 1248	14 / 14	6.83	0.860	0.338	1 / 1	4.83	4.83	4.83	1 / 3	0.067	0.067	0.067	NA		NA	
Aroclor 1254	14 / 14	8.39	1.25	0.635	1 / 1	4.52	4.52	4.52	2 / 3	0.234	0.121	0.121	NA		NA	
Aroclor 1260	13 / 14	0.850	0.330	0.299	0 / 1	ND	ND	ND	1 / 3	0.158	0.158	0.158	NA		NA	
Total PCBs	14 / 14	**15.2**	**2.41**	**1.28**	1 / 1	**9.35**	**9.35**	**9.35**	2 / 3	**0.459**	**0.234**	**0.234**	0.023	a	0.18	a
Semi-Volatile Organic Compounds (SVOCs)																
1,2-Dichlorobenzene	0 / 14	ND	ND	ND	0 / 1	ND	ND	ND	0 / 3	ND	ND	ND	NA		0.013	b
bis(2-Ethylhexyl)phthalate	14 / 14	**278**	**24.0**	**2.49**	1 / 1	**250**	**250**	**250**	2 / 3	**35.7**	**18.1**	**18.1**	0.18216	b	2.64651	b
Dibenzofuran	0 / 14	ND	ND	ND	0 / 1	ND	ND	ND	1 / 3	0.861	0.861	0.861	NA		NA	
Di-n-octylphthalate	1 / 14	25.1	25.1	25.1	1 / 1	43.5	43.5	43.5	1 / 3	1.26	1.26	1.26	NA		NA	
Hexachlorobutadiene	0 / 14	ND	ND	ND	0 / 1	ND	ND	ND	0 / 3	ND	ND	ND	NA		NA	
Phenol	0 / 14	ND	ND	ND	0 / 1	ND	ND	ND	1 / 3	0.307	0.307	0.307	NA		0.13	b
Polycyclic Aromatic Hydrocarbons (PAHs)																
2-Methylnaphthalene	17 / 17	**0.447**	**0.122**	**0.080**	2 / 5	**0.758**	**0.495**	**0.495**	3 / 8	**3.48**	**1.54**	**0.805**	0.07	a	0.67	a
Acenaphthene	17 / 17	**1.56**	**0.184**	**0.084**	2 / 5	**2.27**	**1.22**	**1.22**	3 / 8	**27.0**	**10.0**	**2.31**	0.016	a	0.5	a
Acenaphthylene	17 / 17	**1.17**	**0.460**	**0.341**	4 / 5	**1.15**	**0.460**	**0.319**	5 / 8	**101**	**20.7**	**0.800**	0.044	a	0.64	a
Anthracene	17 / 17	**6.84**	**0.935**	**0.419**	4 / 5	**5.61**	**1.74**	**0.649**	5 / 8	**177**	**36.6**	**1.30**	0.085	a	1.1	a
Benzo(a)anthracene	17 / 17	**11.8**	**1.80**	**1.07**	4 / 5	**10.8**	**3.60**	**1.75**	6 / 8	**129**	**22.4**	**0.669**	0.261	a	1.6	a
Benzo(a)pyrene	17 / 17	**11.5**	**2.06**	**1.45**	4 / 5	**7.84**	**3.01**	**2.05**	6 / 8	**130**	**22.6**	**0.586**	0.43	a	1.6	a
Benzo(b)fluoranthene	17 / 17	13.7	2.78	2.27	4 / 5	10.6	3.81	2.25	6 / 8	147	25.7	0.779	NA		1.8	b
Benzo(g,h,i)perylene	17 / 17	7.45	1.16	0.776	4 / 5	4.33	1.47	0.759	6 / 8	87.8	15.3	0.217	NA		NA	
Benzo(k)fluoranthene	17 / 17	1.61	0.660	0.596	4 / 5	3.73	1.17	0.450	5 / 8	40.1	8.47	0.482	NA		NA	
Chrysene	17 / 17	**11.4**	**1.94**	**1.43**	4 / 5	**10.8**	**3.67**	**1.90**	6 / 8	**104**	**18.3**	**0.713**	0.384	a	2.8	a
Dibenzo(a,h)Anthracene	17 / 17	**1.74**	**0.333**	**0.248**	3 / 5	**1.23**	**0.601**	**0.521**	4 / 8	**23.0**	**5.96**	**0.405**	0.063	a	0.26	a
Fluoranthene	17 / 17	**33.8**	**4.19**	**2.18**	4 / 5	**31.9**	**9.55**	**3.06**	6 / 8	**411**	**71.2**	**1.28**	0.6	a	5.1	a
Fluorene	17 / 17	**2.87**	**0.331**	**0.127**	3 / 5	**2.97**	**1.10**	**0.300**	5 / 8	**80.1**	**16.5**	**0.248**	0.019	a	0.54	a
Indeno(1,2,3-cd)Pyrene	17 / 17	8.75	1.40	0.990	4 / 5	5.51	1.86	0.932	6 / 8	93.9	16.4	0.258	NA		NA	
Naphthalene	17 / 17	**2.24**	**0.595**	**0.490**	4 / 5	**1.32**	**0.524**	**0.360**	5 / 8	**20.7**	**5.80**	**3.34**	0.16	a	2.1	a
Phenanthrene	17 / 17	**28.3**	**2.76**	**0.953**	4 / 5	**24.9**	**6.63**	**0.795**	5 / 8	**415**	**85.2**	**2.27**	0.24	a	1.5	a
Pyrene	17 / 17	**29.8**	**4.06**	**2.33**	5 / 5	**23.8**	**6.15**	0.481	6 / 8	**322**	**56.1**	**1.45**	0.665	a	2.6	a
Total PAHs	17 / 17	**174**	**25.8**	**16.1**	5 / 5	**149**	**37.8**	2.92	6 / 8	**2312**	**402**	**12.0**	4.022	a	44.792	a
Classical Chemistry																
Corrosivity (pH)	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Eh (ORP)	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Percent Water	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Reactive Sulfide	0 / 0	--	--	--	0 / 0	--	--	--	0 / 0	--	--	--	NA		NA	
Extractable Petroleum Hydrocarbons																
C11-C22 Aromatics1,2	14 / 14	434	105	69.6	1 / 1	631	631	631	1 / 3	371	371	371	NA		NA	
C19-C36 Aliphatics1	14 / 14	277	147	135	1 / 1	474	474	474	1 / 3	275	275	275	NA		NA	
C9-C18 Aliphatics1	3 / 14	145	72.0	36.2	1 / 1	293	293	293	1 / 3	139	139	139	NA		NA	
Total EPH	14 / 14	845	268	198	1 / 1	1398	1398	1398	1 / 3	785	785	785	NA		NA	
Total Metals																
Antimony	6 / 17	2.01	1.05	0.790	0 / 5	ND	ND	ND	0 / 8	ND	ND	ND	NA		9.3	b
Arsenic	17 / 17	**35.5**	**21.5**	**21.0**	5 / 5	**29.8**	**17.5**	**19.9**	8 / 8	**33.6**	**14.9**	7.82	8.2	a	70	a
Barium	17 / 17	201	75.4	64.8	5 / 5	83.5	44.9	36.7	8 / 8	97.7	50.4	46.3	NA		48	b
Beryllium	17 / 17	0.870	0.581	0.570	5 / 5	0.840	0.476	0.400	8 / 8	0.950	0.555	0.545	NA		NA	
Cadmium	17 / 17	**8.51**	**2.10**	**1.26**	3 / 5	**2.32**	**1.48**	**1.65**	3 / 8	**4.50**	**3.27**	**3.70**	1.2	a	9.6	a
Chromium	17 / 17	**170**	**85.1**	76.3	5 / 5	**92.3**	53.7	41.1	8 / 8	**86.5**	35.9	29.3	81	a	370	a
Lead	17 / 17	**770**	**269**	**211**	5 / 5	**258**	**116**	**94.9**	7 / 8	**336**	**90.5**	10.4	47	a	218	a
Mercury	17 / 17	**1.08**	**0.408**	**0.256**	4 / 5	**0.375**	**0.264**	**0.291**	2 / 8	**0.455**	**0.295**	**0.295**	0.15	a	0.71	a
Nickel	17 / 17	**67.4**	**28.7**	**25.1**	5 / 5	**28.9**	18.4	13.9	8 / 8	**30.9**	17.2	17.2	21	a	52	a
Selenium	0 / 17	ND	ND	ND	0 / 5	ND	ND	ND	2 / 8	3.63	2.77	2.77	NA		1	b
Silver	16 / 17	**3.09**	**1.44**	**1.22**	2 / 5	**1.20**	0.855	0.855	1 / 8	0.610	0.610	0.610	1	a	3.7	a
Thallium	0 / 17	ND	ND	ND	0 / 5	ND	ND	ND	0 / 8	ND	ND	ND	NA		NA	
Vanadium	17 / 17	484	102	69.1	5 / 5	131	57.2	38.3	8 / 8	74.3	38.1	37.7	NA		57	b
Zinc	17 / 17	**618**	**360**	**334**	5 / 5	**354**	**189**	**165**	8 / 8	**309**	111	45.8	150	a	410	a

Notes:
1. Results are presented in mg/kg unless otherwise noted.
2. "--" indicates that an analyte was not tested for. "ND" indicates that an analyte was tested for but not detected above the reporting limit.
   "NA" indicates that a benchmark value is not available
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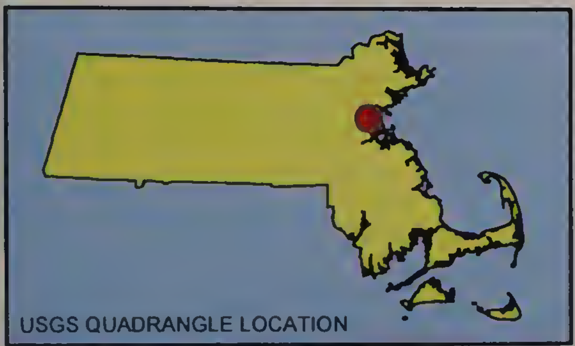
   a. Effects Range - Low (ERL) and Effects Range - Median (ERM) Marine Sediment screening values from Long, et al., 1995.
   b. ERL and ERMM equivalent Marine Sediment benchmark values from http://e; ERL and Er-M equivalent Marine Sediment benchmark values
6. Bolded values exceed the conservative ERL screening value.
7. Shaded values exceed the ERM benchmark value.

FIGURES



SOURCE : THIS MAP CONTAINS THE ESRI ARCGIS ONLINE USA TOPOGRAPHIC MAP SERVICE, PUBLISHED DECEMBER 12, 2009 BY ESRI ARCIMS SERVICES AND UPDATED AS NEEDED. THIS SERVICE USES UNIFORM NATIONALLY RECOGNIZED DATUM AND CARTOGRAPHY STANDARDS AND A VARIETY OF AVAILABLE SOURCES FROM SEVERAL DATA PROVIDERS.

Data Supplied by : esri

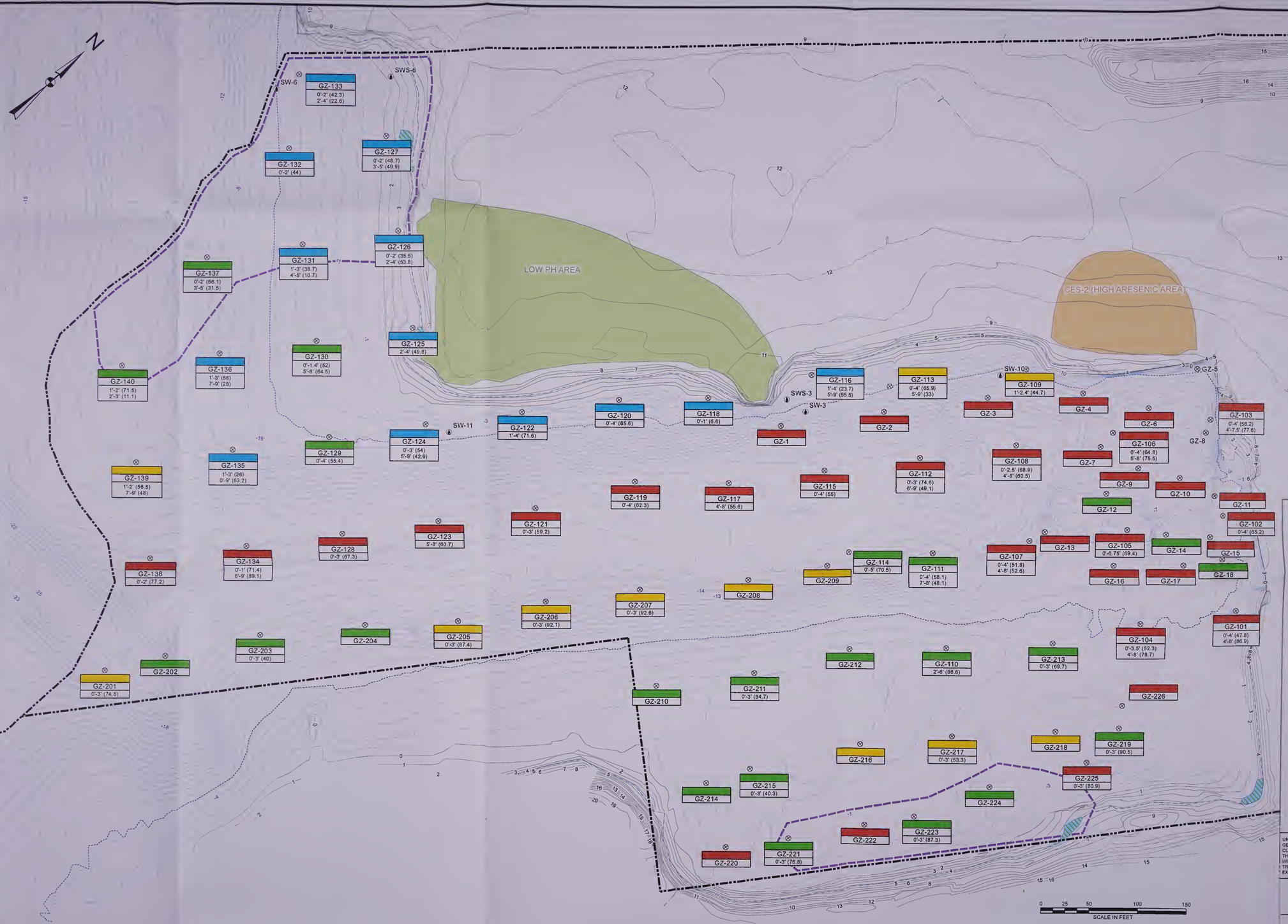
0 1,000 2,000 4,000 6,000

SCALE IN FEET

N W E S

GZA	PROJ. MGR.: DEL DESIGNED BY: DEL REVIEWED BY: DEL OPERATOR: SMW DATE: 12-30-2015	LOCUS PLAN	JOB NO. 01.0171521.10
		FORMER EVERETT STAGING YARD EVERETT, MASSACHUSETTS	FIGURE NO. 1

© 2015 - GZA GeoEnvironmental, Inc., J:\170,000-179,999\171521\171521-00.DEL\FIGURES\GIS\MXDs\171521_SITE_LOCUS-FIG1.mxd, 12/30/2015, 3:22:12 PM, anthony.pungitore



LEGEND

- SURFACE WATER (SW), SURFACE WATER SEEP (SWS)
- SEDIMENT CORING LOCATION
- GZ-101 / 0'-4' (47.8): LITHOLOGY INDICATOR SAMPLE ID; PERCENT PASSING NO. 200 SIEVE WITH CORRESPONDING DEPTHS
- APPROXIMATE PARCEL BOUNDARY
- APPROXIMATE *LIMITS* OF LOW PENETRATION DEPTHS AND SHALLOW REFUSALS
- SURFICIAL CONTOUR
- BATHYMETRIC CONTOUR
- MEAN ANNUAL HIGH WATER
- MEAN ANNUAL LOW WATER
- CES-2 (HIGH ARSENIC AREA)
- LOW PH AREA
- SALT MARSH

LITHOLOGY KEY

CLAYEY SILT / SILT / SAND	ORGANIC CLAYEY SILT / SAND	CLAYEY SILT / CLAY	SAND / SAND & SILT

SOURCE

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FORMER EVERETT STAGING YARD
EVERETT, MA

WATER-SIDE SAMPLE LOCATION PLAN

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PROJ MGR: DEL	REVIEWED BY: DEL	CHECKED BY: DEL	FIGURE 2
DESIGNED BY: TLB	DRAWN BY: SMW	SCALE: 1 INCH = 50 FT	
DATE: 12-30-2015	PROJECT NO. 01.0171521.13	REVISION NO.	

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LEGEND

⊗ 2015 LOCAL CONDITIONS SEDIMENT SAMPLE LOCATION

APPROXIMATE PROPERTY BOUNDS

SOURCE

1) THIS MAP CONTAINS THE ESRI ArcGIS ONLINE BING MAPS AERIAL LAYER PACKAGE, PUBLISHED DECEMBER 1, 2010 BY ESRI ARCIMS SERVICES AND UPDATED MONTHLY. THIS SERVICE USES UNIFORM NATIONALLY RECOGNIZED DATUM AND CARTOGRAPHY STANDARDS AND A VARIETY OF AVAILABLE SOURCES FROM SEVERAL DATA PROVIDERS. esri

2) THE SAMPLE LOCATIONS AND ELEVATIONS WERE APPROXIMATELY DETERMINED BY GPS. THIS DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED

0 150 300 600

SCALE IN FEET

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FORMER EVERETT STAGING YARD
EVERETT, MA

2015 LOCAL CONDITIONS SEDIMENT SAMPLE LOCATIONS

PREPARED BY:		PREPARED FOR:	
GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		WYNN MA, LLC	
PROJ MGR: DEL	REVIEWED BY: DEL	CHECKED BY: DEL	FIGURE 3
DESIGNED BY: TLB	DRAWN BY: JAI	SCALE: 1 " = 300 FEET	
DATE: 12/30/2015	PROJECT NO. 01.0171521.13	REVISION NO.	

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LEGEND

- GZ-101 ⊗ 2013 AND 2015 SEDIMENT CORE LOCATIONS FOR SUPPLEMENTAL PHASE II
- GZ-1 ⊗ 2013 SEDIMENT CORE LOCATIONS COMPOSITE SAMPLES FOR DREDGE PERMITS
- APPROXIMATE PARCEL BOUNDARY
- WATER-SIDE DISPOSAL SITE BOUNDARY
- BATHYMETRIC CONTOUR
- SURFICIAL CONTOUR
- APPROXIMATE LIMITS OF DREDGE AREA
- SALT MARSH

SAMPLE DEPTH (FEET)

48.2	0.0-0.5'
NA	0.5-2.0'
779	2.0-4.0'
65.4	4.0-6.0'
30.3	6.0' OR GREATER

CONCENTRATION RANGE (mg/kg)

NA	NOT ANALYZED
	NON DETECT
	0-8.2 ≤ ER-L
	8.2-35 ≤ ER-M
	35-70 ≤ ER-M
	70-140 ERM X 2
	140 OR GREATER

BLUE OUTLINE INDICATES SURFICIAL SAMPLE EXCEEDING THE ARSENIC CLEANUP GOAL OF 38.6 MG/KG

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SOURCE

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FORMER EVERETT STAGING YARD
EVERETT, MA

ARSENIC CONCENTRATIONS IN SEDIMENT

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PROJ MGR: DEL	REVIEWED BY: DEL	CHECKED BY: DEL	FIGURE
DESIGNED BY: TLB	DRAWN BY: SMW	SCALE: 1 INCH = 50 FT	4A
DATE: 12-30-2015	PROJECT NO. 01.0171521.13	REVISION NO.	

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SOUTH WEST SHOAL / OFF-SITE WEST

OFF-SITE EAST

LEAD CONCENTRATIONS IN SEDIMENT (mg/kg)

LEGEND

- GZ-101 ⊗ 2013 AND 2015 SEDIMENT CORE LOCATIONS FOR SUPPLEMENTAL PHASE II
- GZ-1 ⊗ 2013 SEDIMENT CORE LOCATIONS COMPOSITE SAMPLES FOR DREDGE PERMITS
- APPROXIMATE PARCEL BOUNDARY
- WATER-SIDE DISPOSAL SITE BOUNDARY
- BATHYMETRIC CONTOUR
- SURFICIAL CONTOUR
- APPROXIMATE LIMITS OF DREDGE AREA
- SALT MARSH

SAMPLE DEPTH (FEET)

- 0.0-0.5'
- 0.5-2.0'
- 2.0-4.0'
- 4.0-6.0'
- 6.0' OR GREATER

BLUE OUTLINE INDICATES SURFICIAL SAMPLE EXCEEDING THE LEAD CLEANUP GOAL OF 250 MG/KG

CONCENTRATION RANGE (mg/kg)

- NA NOT ANALYZED
- NON DETECT
- 0-47 ≤ ER-L
- 47-132 1/2 ER-M
- 132-218 ≤ ER-M
- 218-436 2 X ER-M
- 436 OR GREATER

0 25 50 100 150

SCALE IN FEET

SOURCE

1) THE BASE MAP WAS DEVELOPED FROM PLANS OR ELECTRONIC FILES PROVIDED BY "FELDMAN LAND SURVEYORS" ENTITLED "EXISTING CONDITIONS PLAN" DATED: 02-20-2015, ORIGINAL SCALE: 1"=20', DRAWING NO. 14517, CAD FILE: 14517-EX-DRAFT-03-20-15.DWG.

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FORMER EVERETT STAGING YARD
EVERETT, MA

LEAD CONCENTRATIONS IN SEDIMENT

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PROJ MGR: DEL	REVIEWED BY: DEL	CHECKED BY: DEL	FIGURE 4B
DESIGNED BY: TLB	DRAWN BY: SMW	SCALE: 1 INCH = 50 FT	
DATE: 12-30-2015	PROJECT NO: 01.0171521.13	REVISION NO:	

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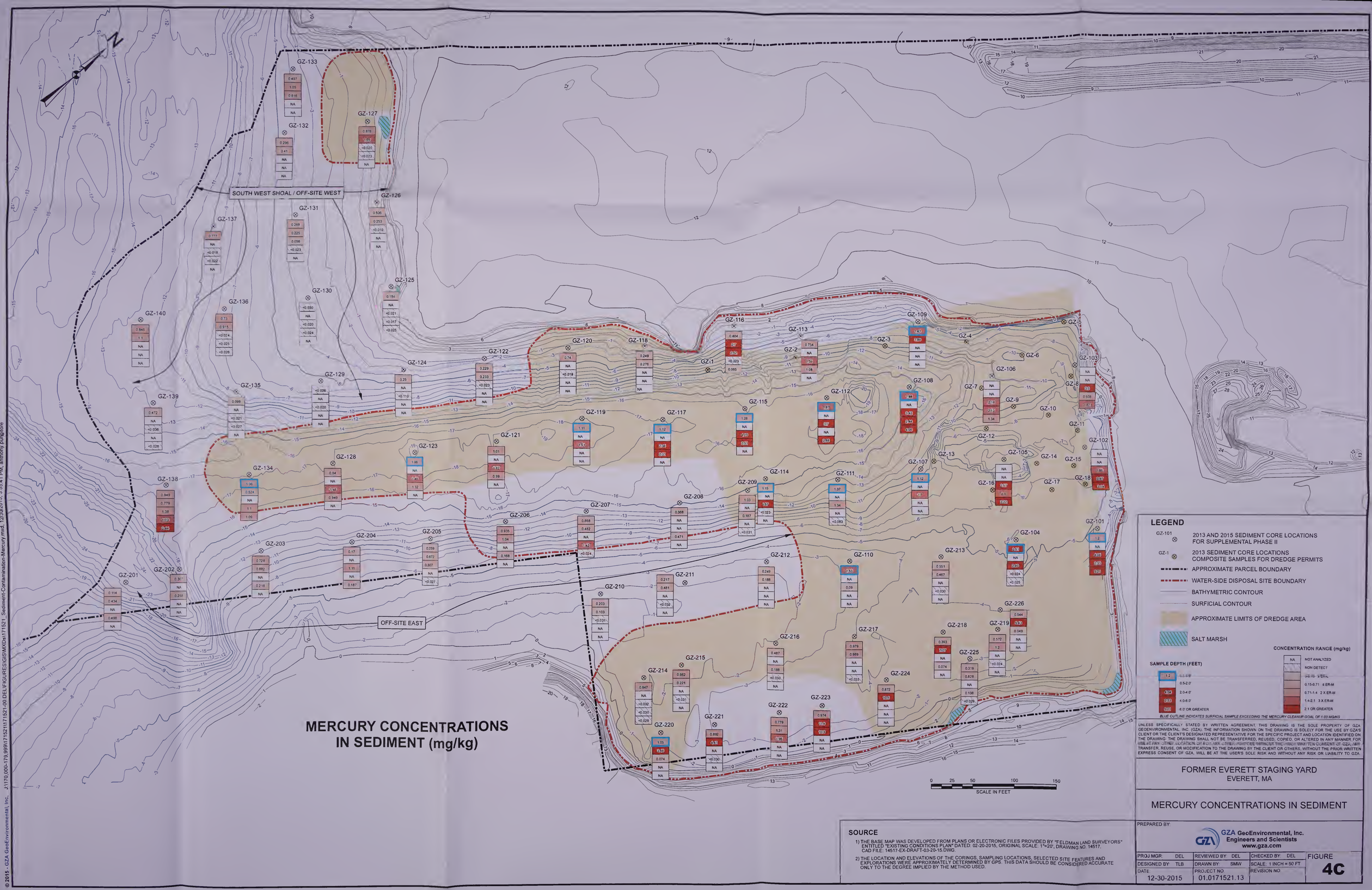
J:\170,000-179,999\171521\171521-00.DEL\FIGURES\GIS\MXD\171521_Sediment-Contamination-Lead.mxd, 12/30/2015, 3:46:48 PM, anthony purgitore



LEGEND

- GZ-101 — 2013 AND 2015 SEDIMENT CORE LOCATIONS FOR SUPPLEMENTAL PHASE II
- GZ-1 — 2013 SEDIMENT CORE LOCATIONS COMPOSITE SAMPLES FOR DREDGE PERMITS
- APPROXIMATE PARCEL BOUNDARY
- WATER-SIDE DISPOSAL SITE BOUNDARY
- BATHYMETRIC CONTOUR
- SURFICIAL CONTOUR
- APPROXIMATE LIMITS OF DREDGE AREA
- SALT MARSH

SAMPLE DEPTH (FEET)

0-0.5'	0.5-2.0'
2.0-4.0'	4.0-6.0'
6.0' OR GREATER	

CONCENTRATION RANGE (mg/kg)

NA	NOT ANALYZED
ND	NON DETECT
0.15 - 0.71	≤ ER-M
0.71-1.4	2 X ER-M
1.4-2.1	3 X ER-M
2.1 OR GREATER	

BLUE OUTLINE INDICATES SURFICIAL SAMPLE EXCEEDING THE MERCURY CLEANUP GOAL OF 1.03 MG/KG

SOURCE

1) THE BASE MAP WAS DEVELOPED FROM PLANS OR ELECTRONIC FILES PROVIDED BY "FELDMAN LAND SURVEYORS" ENTITLED "EXISTING CONDITIONS PLAN" DATED: 02-20-2015, ORIGINAL SCALE: 1"=20', DRAWING NO. 14517, CAD FILE: 14517-EX-DRAFT-03-20-15.DWG.

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FORMER EVERETT STAGING YARD
EVERETT, MA

MERCURY CONCENTRATIONS IN SEDIMENT

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PROJ MGR: DEL	REVIEWED BY: DEL	CHECKED BY: DEL	FIGURE	
DESIGNED BY: TLB	DRAWN BY: SMW	SCALE: 1 INCH = 50 FT		4C
DATE: 12-30-2015	PROJECT NO. 01.0171521.13	REVISION NO.		

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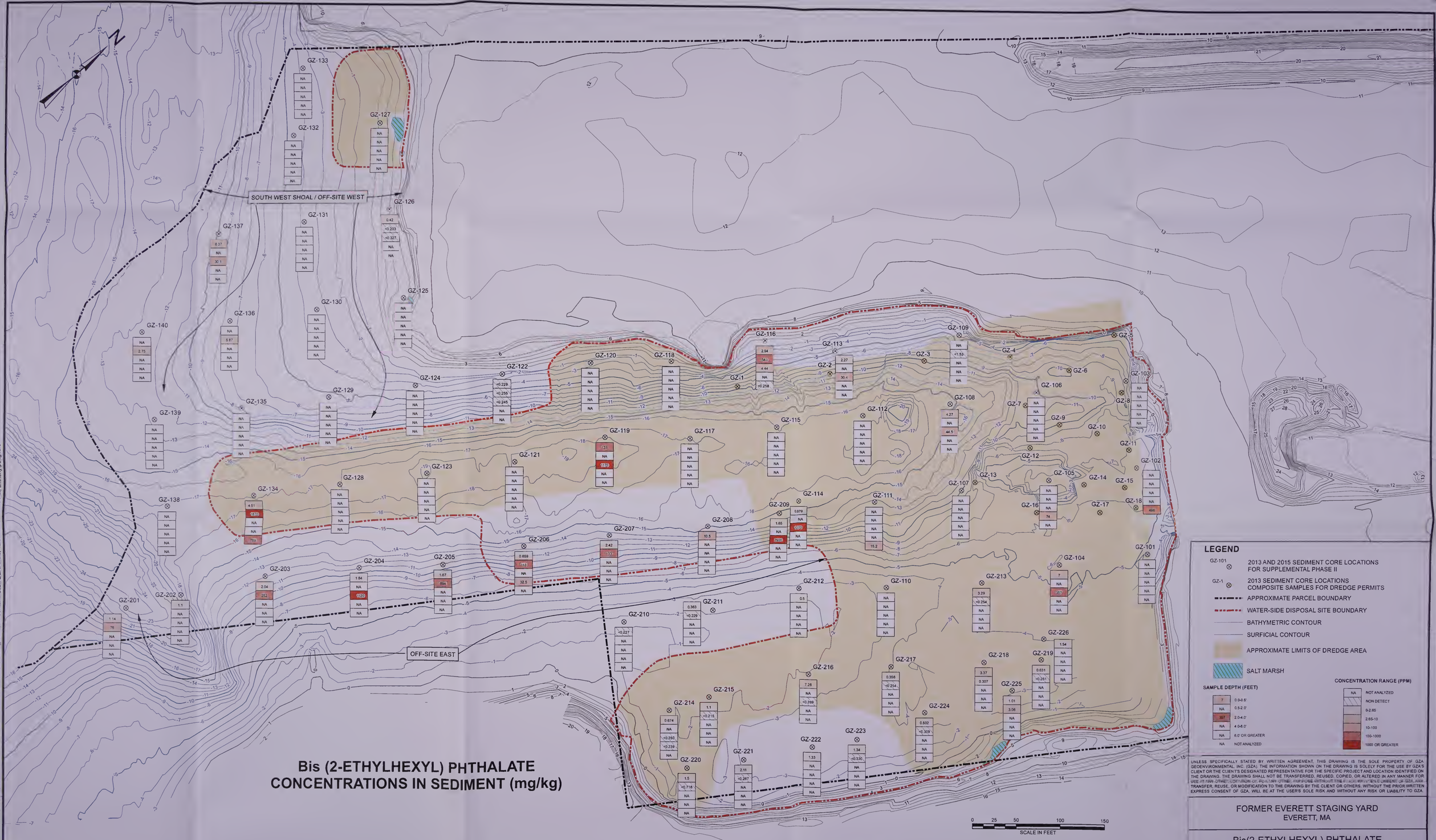

LEGEND

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- SURFICIAL CONTOUR
- APPROXIMATE LIMITS OF DREDGE AREA
- SALT MARSH

SAMPLE DEPTH (FEET)

7	0.0-0.5'
NA	0.5-2.0'
307	2.0-4.0'
NA	4.0-6.0'
NA	6.0' OR GREATER
NA	NOT ANALYZED

CONCENTRATION RANGE (PPM)

NA	NOT ANALYZED
	NON DETECT
	0-2.65
	2.65-10
	10-100
	100-1000
	1000 OR GREATER

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FORMER EVERETT STAGING YARD
EVERETT, MA

Bis(2-ETHYLHEXYL) PHTHALATE CONCENTRATIONS IN SEDIMENT

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PROJ MGR: DEL	REVIEWED BY: DEL	CHECKED BY: DEL	FIGURE	
DESIGNED BY: TLB	DRAWN BY: SMW	SCALE: 1 INCH = 50 FT.	4D	
DATE: 12-30-2015	PROJECT NO. 01.0171521.13	REVISION NO.		

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SOUTH WEST SHOAL / OFF-SITE WEST

OFF-SITE EAST

PCB CONCENTRATIONS IN SEDIMENT (mg/kg)

LEGEND

- GZ-101 ⊗ 2013 AND 2015 SEDIMENT CORE LOCATIONS FOR SUPPLEMENTAL PHASE II
- GZ-1 ⊗ 2013 SEDIMENT CORE LOCATIONS COMPOSITE SAMPLES FOR DREDGE PERMITS
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- WATER-SIDE DISPOSAL SITE BOUNDARY
- BATHYMETRIC CONTOUR
- SURFICIAL CONTOUR
- APPROXIMATE LIMITS OF DREDGE AREA
- SALT MARSH

SAMPLE DEPTH (FEET)

3.278	0.0-0.5'
NA	0.5-2.0'
8.56	2.0-4.0'
NA	4.0-8.0'
NA	8.0' OR GREATER

CONCENTRATION RANGE (PPM)

NA	NOT ANALYZED
	0.0-1.8 x ER-L
	0.18-1
	1-10
	10-50
	50 OR GREATER

0 25 50 100 150
SCALE IN FEET

SOURCE

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FORMER EVERETT STAGING YARD
EVERETT, MA

PCB CONCENTRATIONS IN SEDIMENT

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PROJ MGR: DEL	REVIEWED BY: DEL	CHECKED BY: DEL	FIGURE	
DESIGNED BY: TLB	DRAWN BY: SMW	SCALE: 1 INCH = 50 FT		4E
DATE: 12-30-2015	PROJECT NO. 01.0171521.13	REVISION NO.		

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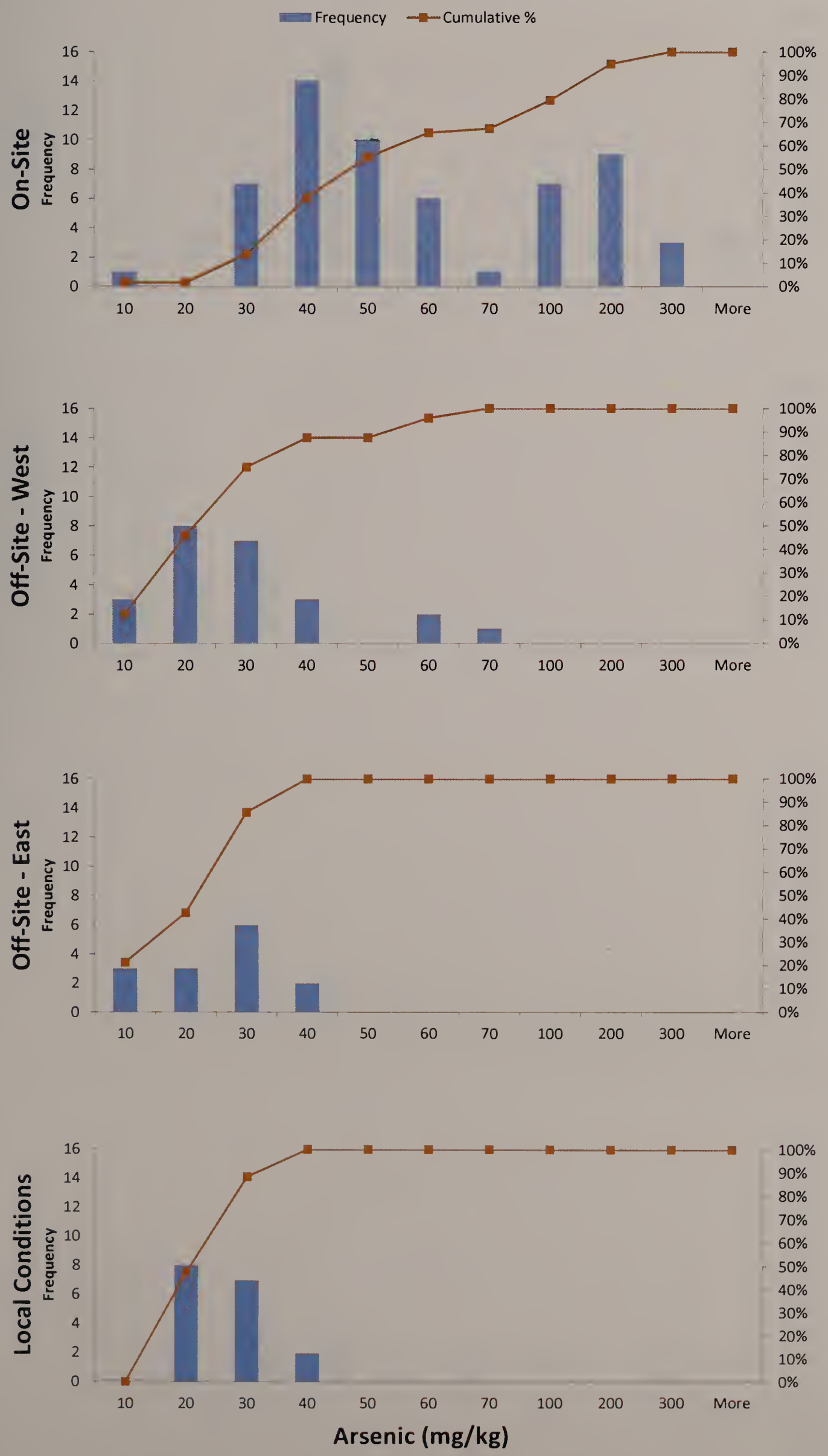
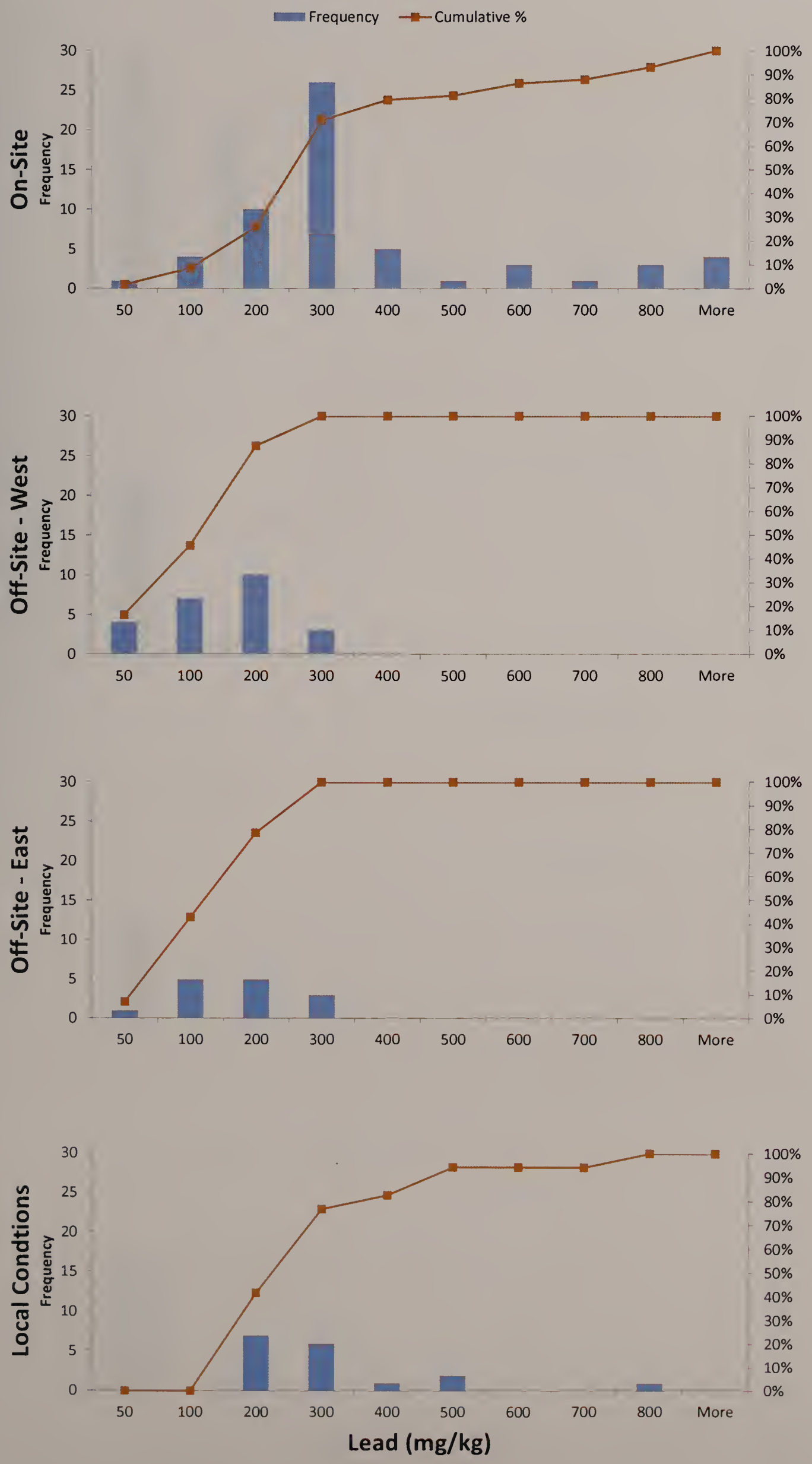
Figure 5A - Arsenic Concentration Distribution in Shallow Sediment



J:\170,000-179,999\171521\171521-02.DEL\Supplemental Phase II\old\DRAFT 11-13-15\Figures\DRAFT Figs 5A 5B 5C first 3 sheets.xlsm

Figure 5B - Lead Concentration Distribution in Shallow Sediment



J:\170,000-179,999\171521\171521-02.DEL\Supplemental Phase II\old\DRAFT 11-13-15\Figures\DRAFT Figs 5A 5B 5C first 3 sheets.xlsm

Table 5C - Mercury Concentration Distribution in Shallow Sediment

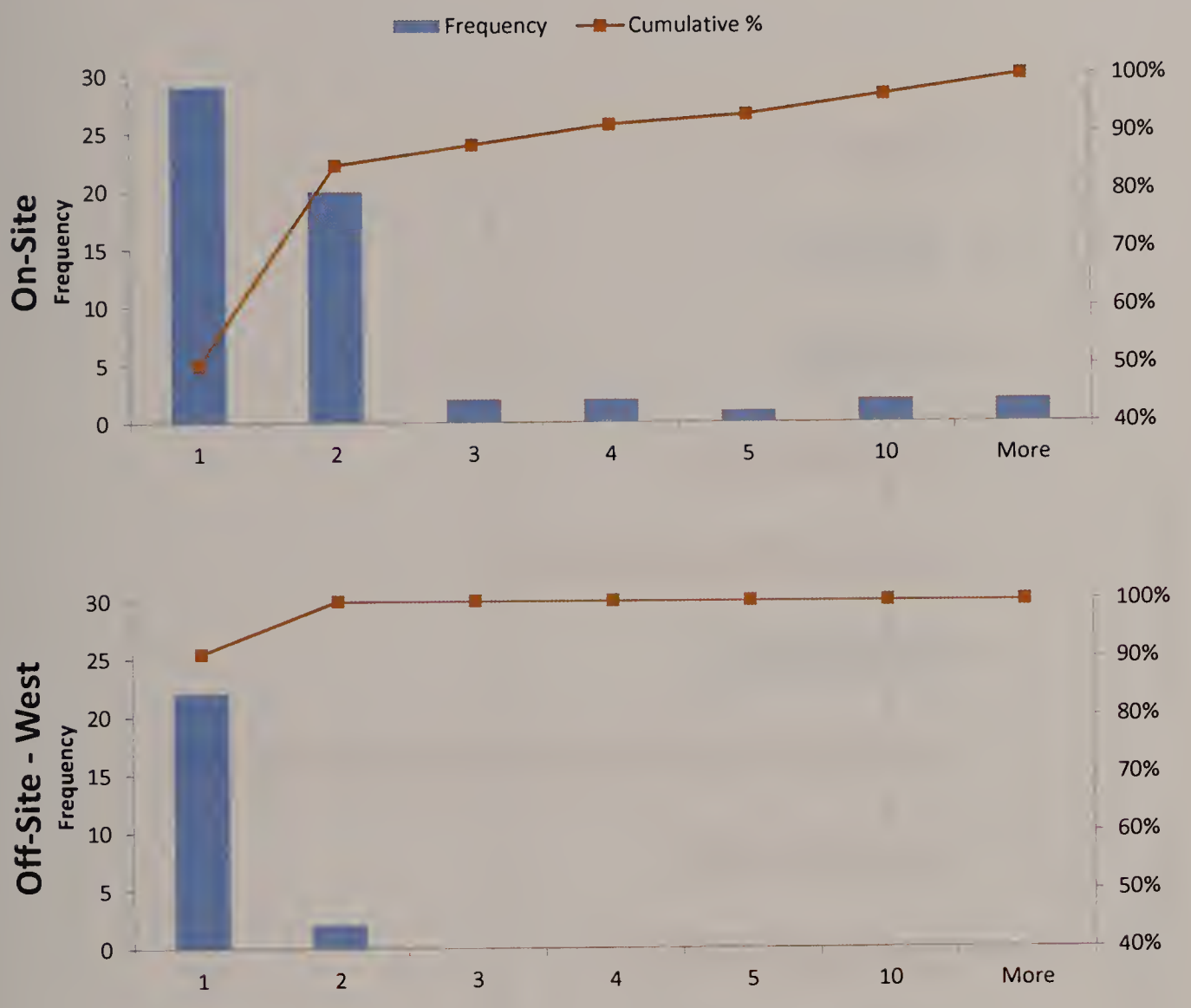


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Figure 6A
Arsenic Concentrations in Toxicity Test Samples

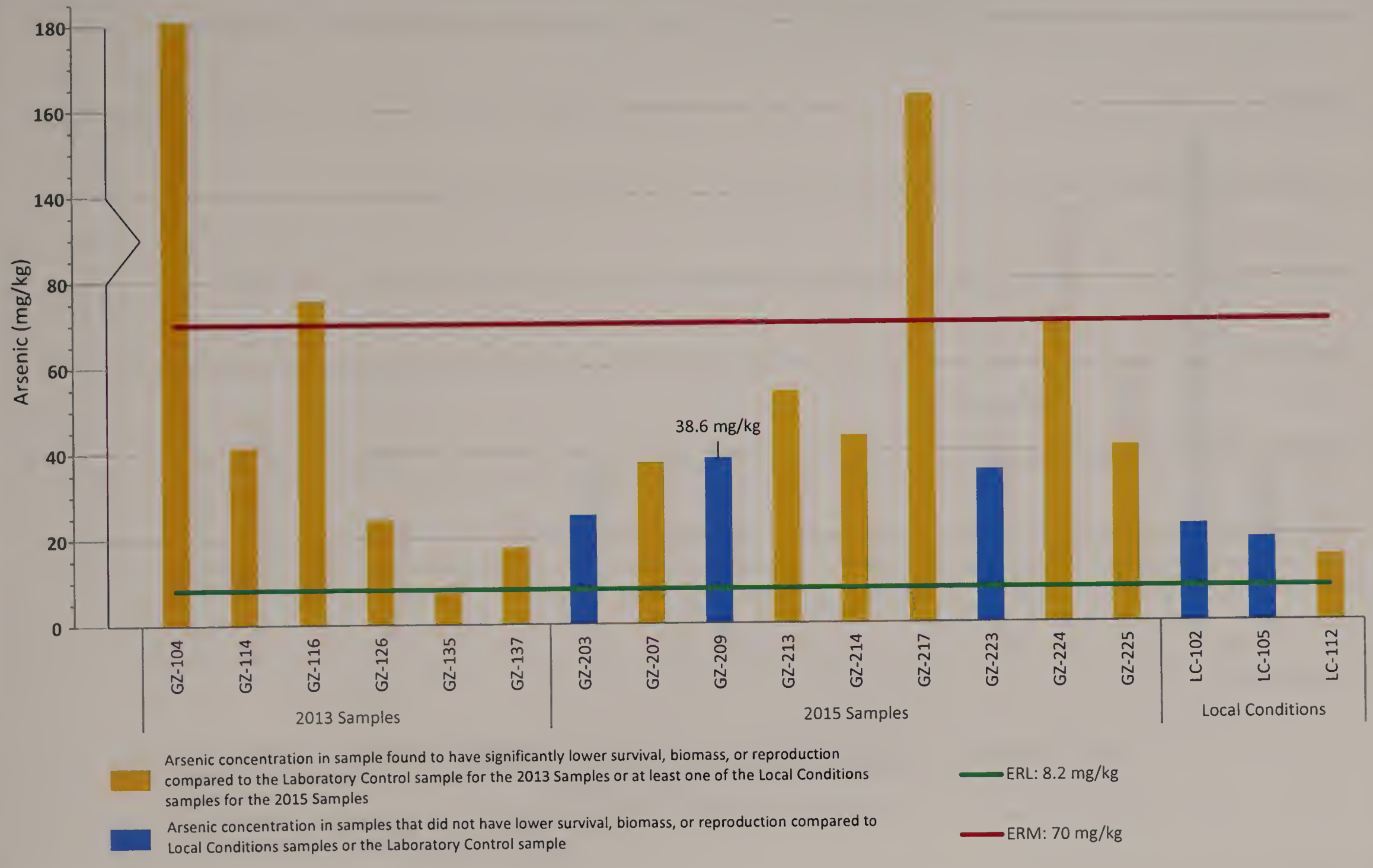


Figure 6B
Lead Concentrations in Toxicity Test Samples

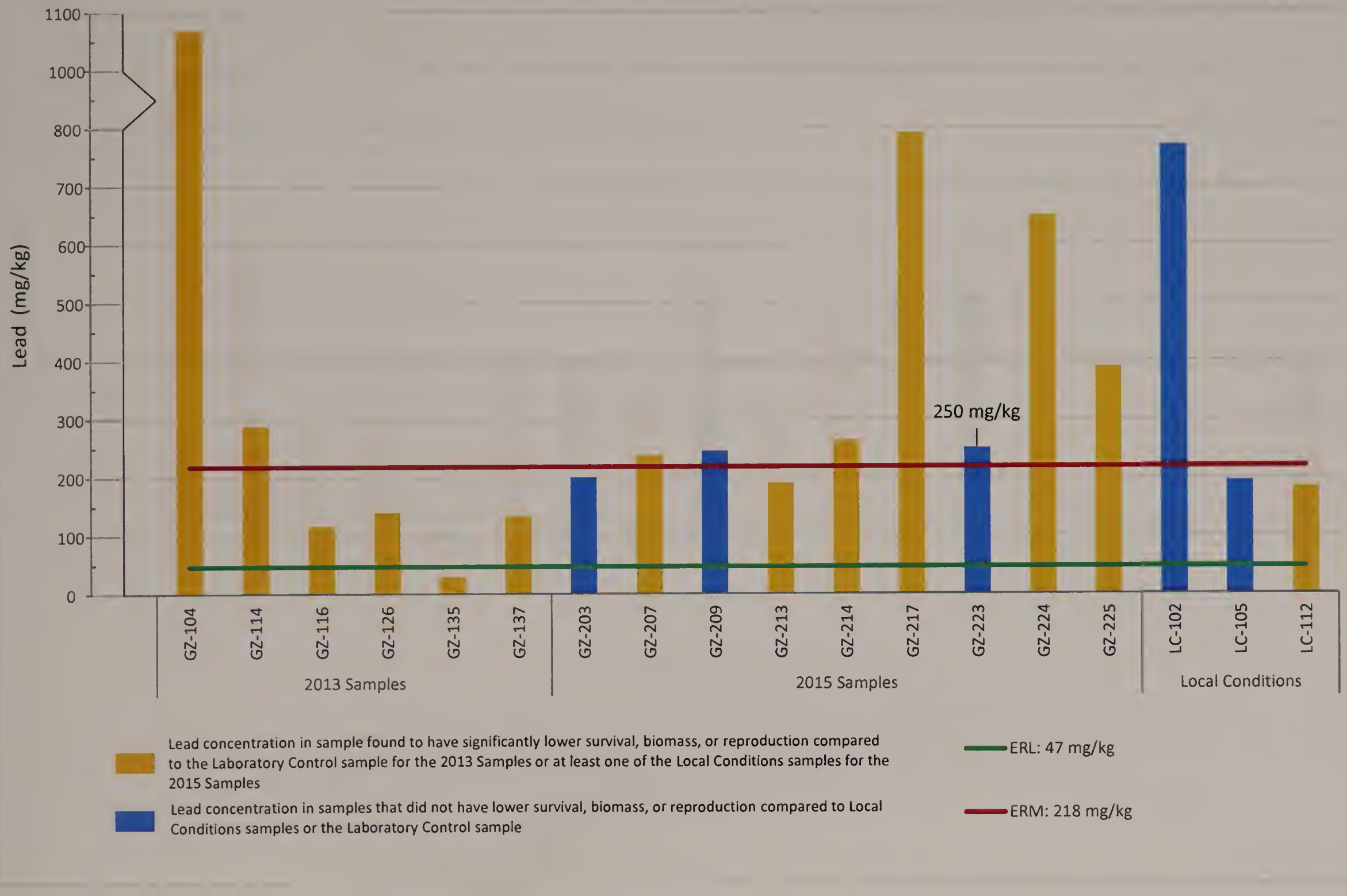
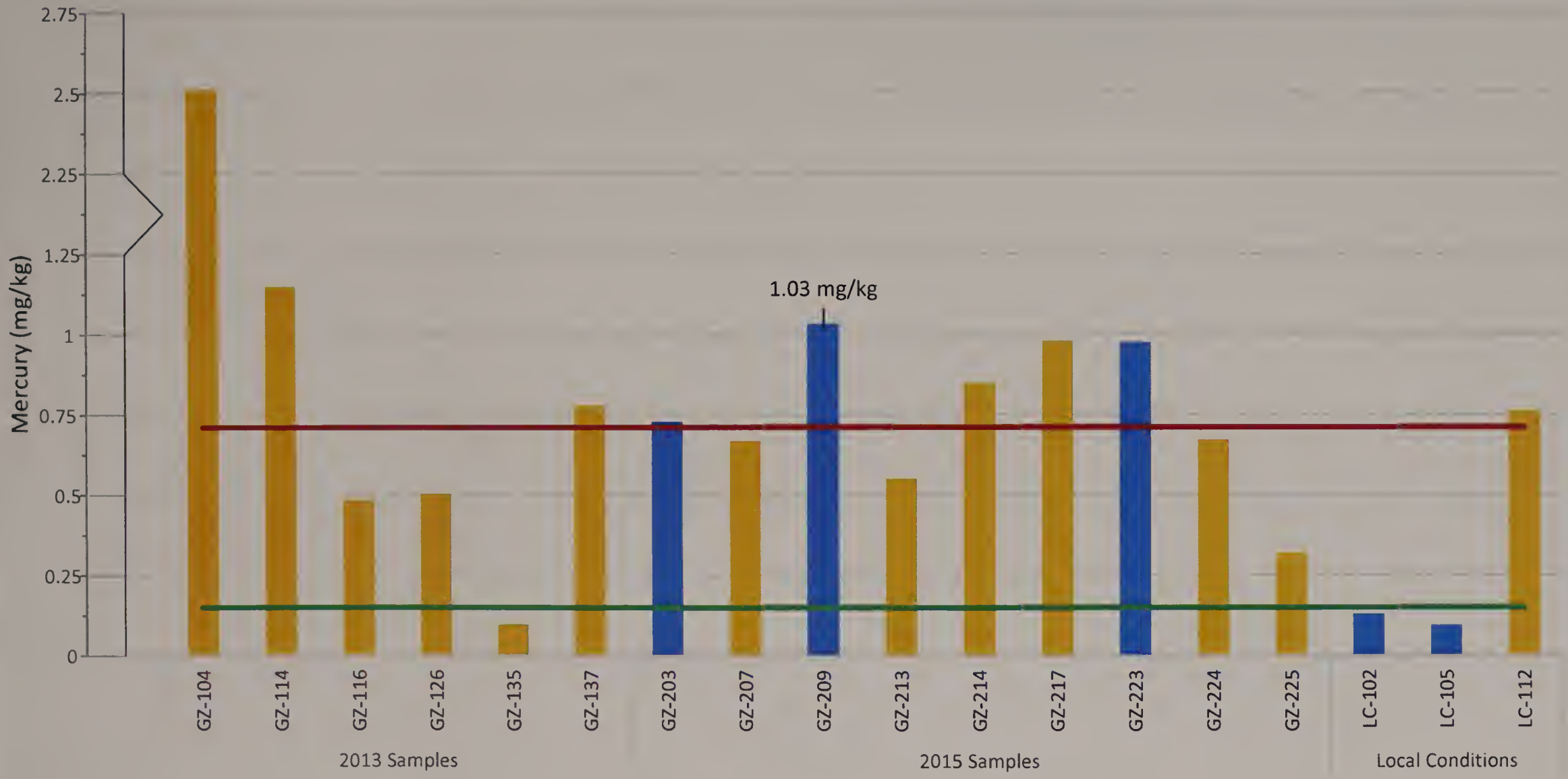
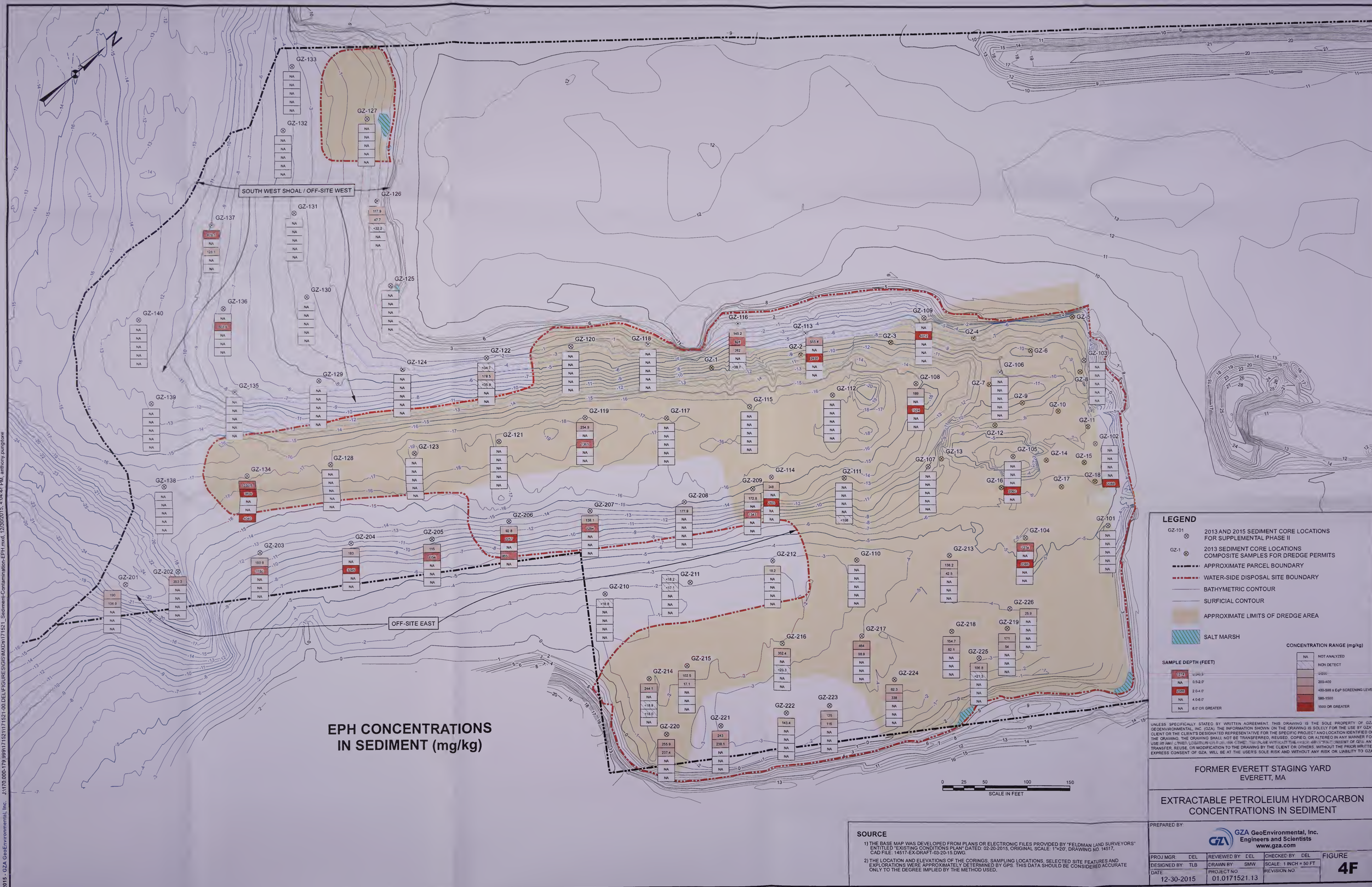


Figure 6C
Mercury Concentrations in Toxicity Test Samples





LEGEND

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- GZ-1 ⊗ 2013 SEDIMENT CORE LOCATIONS COMPOSITE SAMPLES FOR DREDGE PERMITS
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- WATER-SIDE DISPOSAL SITE BOUNDARY
- BATHYMETRIC CONTOUR
- SURFICIAL CONTOUR
- APPROXIMATE LIMITS OF DREDGE AREA
- SALT MARSH

SAMPLE DEPTH (FEET)

- 0.0-0.5'
- 0.5-2.0'
- 2.0-4.0'
- 4.0-6.0'
- 6.0' OR GREATER

CONCENTRATION RANGE (mg/kg)

- NA NOT ANALYZED
- <DL NON DETECT
- <PQL
- 200-400
- 400-598 ≤ EqP SCREENING LEVEL
- 598-1500
- 1500 OR GREATER

SOURCE

1) THE BASE MAP WAS DEVELOPED FROM PLANS OR ELECTRONIC FILES PROVIDED BY "FELDMAN LAND SURVEYORS" ENTITLED "EXISTING CONDITIONS PLAN" DATED: 02-20-2015, ORIGINAL SCALE: 1"=20', DRAWING NO. 14517, CAD FILE: 14517-EX-DRAFT-03-20-15.DWG.

2) THE LOCATION AND ELEVATIONS OF THE CORINGS, SAMPLING LOCATIONS, SELECTED SITE FEATURES AND EXPLORATIONS WERE APPROXIMATELY DETERMINED BY GPS. THIS DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.

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FORMER EVERETT STAGING YARD
EVERETT, MA

EXTRACTABLE PETROLEUM HYDROCARBON CONCENTRATIONS IN SEDIMENT

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PROJ MGR: DEL	REVIEWED BY: DEL	CHECKED BY: DEL		FIGURE
DESIGNED BY: TLB	DRAWN BY: SMW	SCALE: 1 INCH = 50 FT		4F
DATE: 12-30-2015	PROJECT NO. 01.0171521.13	REVISION NO.		

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LEGEND

- GZ-101 ⊗ SEDIMENT CORING LOCATION
- APPROXIMATE PARCEL BOUNDARY
- WATER-SIDE DISPOSAL SITE BOUNDARY
- SURFICIAL CONTOUR
- BATHYMETRIC CONTOUR
- APPROXIMATE LIMITS OF DREDGE AREA
- SALT MARSH

CONTAMINATION KEY

- INDICATES SURFICIAL ARSENIC EXCEEDANCE > 38.6 (mg/kg)
- INDICATES SURFICIAL LEAD EXCEEDANCE > 250 (mg/kg)
- INDICATES SURFICIAL MERCURY EXCEEDANCE > 1.03 (mg/kg)

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EVERETT, MA

PROPOSED EXTENT OF SEDIMENT DREDGING

SOURCE

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DESIGNED BY: TLB	DRAWN BY: SMW	SCALE: 1 INCH = 50 FT	7
DATE: 12-30-2015	PROJECT NO: 01.0171521.13	REVISION NO:	

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Enclosed on CD

APPENDICES

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WATER-SIDE
EVERETT, MASSACHUSETTS
RELEASE TRACKING NUMBER 3-13341

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